

**U.S. Department of the Interior
U.S. Geological Survey**

Publications of the U.S. Geological Survey, 2004

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U.S. Geological Survey**

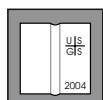
Publications of the U.S. Geological Survey, 2004

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* No new publications in this series for this year.

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¹Individual topographic quadrangle maps are not listed; they are shown on State indexes to topographic maps, which are free on application to USGS Information Services, Box 25286, Federal Center, Denver, CO 80225, and to offices where books and maps are sold over the counter. These indexes also show commercial dealers in each State.



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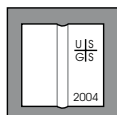
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P 1411-A. Geology of Paleozoic rocks in the Upper Colorado River Basin in Arizona, Colorado, New Mexico, Utah, and Wyoming, excluding the San Juan Basin, by A. L. Geldon. 2003. p. A1-A85, 17 over-size sheets. (Regional Aquifer-System Analysis; Upper Colorado River Basin, excluding San Juan Basin.)

P 1415-C. Regional hydrology and simulation of flow of stratified-drift aquifers in the glaciated northeastern United States, by A. L. Kontis, A. D. Randall and D. L. Mazzaferro. 2004. p. C1-C156. 3 plates in pocket. (Regional Aquifer-System Analysis; northeastern United States.)

P 1422-A. Summary of the hydrogeology of the Valley and Ridge, Blue Ridge, and Piedmont physiographic provinces in the Eastern United States, by L. A. Swain, T. O. Mesko and E. F. Hollyday. 2004. 23 p. (Regional Aquifer-System Analysis; Appalachian Valley and Piedmont.)

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Introduction, by R. E. Wells, U.S. Geological Survey. p. E1-E4.

Stratigraphy and structure across the San Andreas fault zone in the Loma Prieta region and deformation during the earthquake, by R. J. McLaughlin, U.S. Geological Survey; J. C. Clark, Indiana University of Pennsylvania. p. E5-E47.

Geophysical and geologic setting of the earthquake, inferred from gravity and magnetic anomalies, by R. C. Jachens, U.S. Geological Survey; Andrew Griscom, U.S. Geological Survey. p. E49-E80.

Deep geoelectrical structure of the Loma Prieta region, by B. D. Rodriguez, V. F. Labson, W. D. Stanley, and J. A. Sampson, U.S. Geological Survey. p. E81-E105.

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Teleseismic tomography of the Loma Prieta region; implications for strain partitioning, by Yoko Takauchi, and J. R. Evans, U.S. Geological Survey. p. E189-E204.

P 1672. LOUISIANA. Surface-water hydrology of the Gulf Intracoastal Waterway in south-central Louisiana, 1996-99, by C. M. Swarzenski. Prepared in cooperation with the U.S. Army Corps of Engineers, New Orleans District. 2003. 51 p., one plate in pocket.

P 1675. NORTH DAKOTA. Hydrological, chemical, and biological characteristics of a prairie pothole wetland complex under highly variable climate conditions; the Cottonwood Lake area, east-central North Dakota, edited by T. C. Winter, U.S. Geological Survey. 2003. 109 p.

1. Geohydrologic setting of the Cottonwood Lake area, by T. C. Winter, U.S. Geological Survey. p. 1-24.

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3. Spatial and temporal variability in specific conductance and chemical characteristics of wetland water and in water column biota in the wetlands in the Cottonwood Lake area, by J. W. LaBaugh, U.S. Geological Survey; G. A. Swanson, U.S. Fish and Wildlife Service. p. 35-53.

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Processes that govern the formation and evolution of coastal cliffs, by M. A. Hampton, U.S. Geological Survey; G. B. Griggs, University of California; T. B. Edil, University of Wisconsin; D. E. Guy, Ohio Department of Natural Resources; J. T. Kelley, University of Maine; P. D. Komar, Oregon State University; D. M. Mickelson, University of Wisconsin; and H. M. Shipman, Washington State Department of Ecology. p. 7-38.

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Available on the web at
<http://water.usgs.gov/pubs/sir/2004/5001/>

SIR 2004-5003. Method of analysis by the U.S. Geological Survey California District Sacramento Laboratory; determination of trihalomethane formation potential, method validation, and quality-control practices, by K. L. Crepeau, M. S. Fram and Noël Bush. 2004. 22 p. (NC, Da, M; USGS, WRD, Placer Hall, 6000 J St., Sacramento, CA 95819-6129.) Available on the web at
<http://water.usgs.gov/pubs/sir/2004/5003/>

SIR 2004-5004. Sharing of ribotype patterns of *Escherichia coli* isolates during baseflow and stormflow conditions, by P. G. Hartel, University of Georgia; E. A. Frick, A. L. Funk, U.S. Geological Survey; J. L. Hill, J. D. Summer, University of Georgia; and M. B. Gregory, U.S. Geological Survey. Prepared in cooperation with the U.S. Department of the Interior, National Park Service; University of Georgia. 2004. 10 p. Available on the web at
<http://water.usgs.gov/pubs/sir/2004/5004/>

SIR 2004-5005. COLORADO. Third U.S. Geological Survey Wildland Fire-Science Workshop, Denver, Colorado, November 12-15, 2002, by R. K. Livingston. 2004. 67 p. Available on the web at
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DISTRICT OF COLUMBIA. Acid rain and our Nation's capital; a guide to effects on buildings and monuments, by Elaine McGee. 1999. 37 p. Available on the web at <http://pubs.usgs.gov/gip/acidrain/>

GENERAL INFORMATION PRODUCT

General Information Products are specifically intended to educate and inform teachers, students, the news media, nature enthusiasts, and anyone interested in studying things in, on, or around the Earth. The focus is on USGS programs, projects, services, and general scientific information of public interest. The series covers a broad range of topics in a variety of media, including pamphlets, postcards, posters, videos, teacher kits, CD/DVDs, bookmarks, and interactive and motion graphics.

GIP 0002. Ride the Rockies. 2004. Available on the web at <http://pubs.usgs.gov/gip/2004/02/>

- A. Brochure; Geology highlights of the 2004 Ride the Rockies. 2 p.
- B. Postcard. 1 p.
- C. Landsat route map. 1 over-size sheet.
- D. Geology route map. 1 over-size sheet.
- E. Aid stations map. 6 over-size sheets.

MISCELLANEOUS AND SPECIAL BOOKS

Geographic Names Information System (GNIS)

GNIS, developed by the Geographic Names Office, Mapping Applications Center, is the basis for the Digital Gazetteer of the United States (CD-ROM) and includes all names in the data base as of July 1999, as well as the necessary software for searching, analyzing, and exporting the data. The software must be installed onto an IBM-compatible hard disk before the data can be used. The CD-ROM, which can be purchased for \$57 plus \$5.00 shipping, contains the National Geographic Names Data Base (NGNDB), Antarctica Geographic Names Data Base (AGNDB), Topographic Map Names Data Base (TMNDB), and Reference Data Base (RDB). Each record in the NGNDB, AGNDB, and TMNDB can contain a variety of location and description fields. All can be displayed, and most can be searched. Not all fields, however, contain data. The RDB contains one field—bibliography. The CD-ROM is no longer accompanied by a users manual. The installation procedures, readme file, and trouble shooting guide are provided in WordPerfect, HTML, and PDF formats. All necessary information regarding startup procedures are listed in the "Getting_Started" directory on the CD.

The GNIS CD-ROM may be ordered from Information Services, U.S. Geological Survey, DFC, Building 810, MS 306, Denver, CO 80225, or by telephoning 1-888-ASK-USGS. Prepayment is required. Please make check or money order payable to Department of the Interior—USGS. VISA, MasterCard, American Express, and Discover Card are accepted. Prices are subject to change.

Information and Technical Specifications may be requested from U.S. Geological Survey, Manager GNIS, 523 National Center, Reston, VA 20192. 703-648-4544.

CATALOG

Publications of the U.S. Geological Survey, 2003. 2004. 364 p. Available on the web at <http://pubs.usgs.gov/publications/supplements/2003.pdf>

DATA SERIES

The Data Series is intended for release of basic data sets, data bases, and multimedia or motion graphics. This series can include videos, computer programs, and collections of digital photographs.

DS-0087. Time-series photographs of the sea floor in western Massachusetts Bay; June 1997 to June 1998, by Bradford Butman, P. S. Alexander and M. H. Bothner. 2004. One DVD-ROM.



This disc has been produced in accordance with the UDF Standard and is therefore capable of being read on any computing platform that has a DVD drive.

DS-0088. Acetamide herbicides and their degradation products in ground water and surface water of the United States, 1993-2003, by E. A. Scribner, J. E. Dietze and E. M. Thurman. 2004. 252 p. Available on the web at <http://water.usgs.gov/pubs/ds/ds88/>

DS-0089. CALIFORNIA. Water-quality data for selected stream sites in Bridgeport Valley, Mono County, California, April 2000 to June 2003, by G. L. Rockwell and P. D. Honeywell. Prepared in cooperation with the California Regional Water Quality Control Board, Lahontan Region. 2004. 35 p. Available on the web at <http://water.usgs.gov/pubs/ds/ds89/>

DS-0091. Depth to the Juan de Fuca slab beneath the Cascadia subduction margin; a 3-D model for sorting earthquakes, by P. A. McCrory, J. L. Blair, D. H. Oppenheimer and S. R. Walter. 2004. One CD-ROM. Available on the web at <http://pubs.usgs.gov/ds/ds-91/>

This CD-ROM has been produced in accordance with the ISO 9660 Standard and is therefore capable of being read on any computing platform that has appropriate CD-ROM driver software installed. System requirements: Windows: (1) Intel, Pentium or equivalent processor-based personal computer; (2) Microsoft Windows 95 OSR 2.0, Windows 98 SE, Windows Millennium, Windows NT 4.0 with Service Pack 5, Windows 2000, or Windows XP; and (3) 64 MB of RAM. Macintosh: (1) PowerPC processor; and (2) Mac OS software version 8.6, 9.0.4, 9.1, 9.2, or OS X, and (3) 64 MB of RAM. UNIX: Almost any UNIX system-based or Linux workstation can read these files. All platforms: Adobe Acrobat Reader 5.0 or higher (5.0.5, 5.1, and 6.0 for Windows and Macintosh are provided on this disc) or other software that can translate Portable Document Format (PDF) files; and ESRI ArcReader (version 8.3 is provided on this disc).

DS-0101. COLORADO. Comparison of 2002 water year and historical water-quality data, upper Gunnison River basin, Colorado, by N. E. Spahr. Prepared in cooperation with the City of Gunnison, Colorado River Water Conservation District, Crested Butte South Metropolitan District, Gunnison County, Mount Crested Butte Water and Sanitation District, National Park Service, Town of Crested Butte Upper Gunnison River Water Conservancy District. 2004. 70 p. Available on the web at <http://water.usgs.gov/pubs/ds/ds101/>

DS-0102. NORTH DAKOTA, SOUTH DAKOTA. Digital data to support development of a pesticide management plan for the Standing Rock Indian Reservation, Sioux County, North Dakota, and Corson County, South Dakota, by B. D. Schaap. Prepared in cooperation with the U.S. Environmental Protection Agency. 2004. Available on the web at <http://water.usgs.gov/pubs/ds/ds102/>

DS-0104. CALIFORNIA. Pesticide concentrations in water and in suspended and bottom sediments in the New and Alamo Rivers, Salton Sea watershed, California, April 2003, by L. A. LeBlanc, J. L. Orlando and K. M. Kuivila. Prepared in cooperation with the California State Regional Water Quality Control Board. 2004. 15 p. Available on the web at <http://water.usgs.gov/pubs/ds/ds104/>

DIGITAL DATA SERIES

The Digital Data Series encompasses a broad range of digital data, including computer programs, interpreted results of investigations, comprehensive reviewed data bases, spatial data sets, digital images and animation, and multimedia presentations that are not intended for printed release. Scientific reports in this series cover a wide variety of subjects on all facets of U.S. Geological Survey investigations and research that are of lasting scientific interest and value. Releases in the Digital Data Series offer access to scientific information that is available in digital form; the information is primarily for viewing, processing, and (or) analyzing by computer.

DDS-0069-C. WYOMING, MONTANA. Total petroleum system and assessment of coalbed gas in the Powder River Basin Province, Wyoming and Montana, by U. S. Geological Survey, Powder River Basin Province Assessment Team. 2004. One CD-ROM.

This CD-ROM has been produced in accordance with the ISO 9660 Standard and is therefore capable of being read on any computing platform that has appropriate CD-ROM driver software installed.

1. WYOMING, MONTANA. Executive summary; assessment of coalbed gas resources of the Powder River Basin Province, Wyoming and Montana, 2003, by U. S. Geological Survey, Powder River Assessment Team. 4 p.

2. MONTANA, WYOMING. Coalbed methane in the Powder River Basin, Wyoming and Montana; an assessment of the Tertiary-Upper Cretaceous coalbed methane total petroleum system, by R. M. Flores. 56 p.

3. Tabular data and graphical images in support of the U.S. Geological Survey National Oil and Gas Assessment; Powder River Basin Province (5033), Tertiary-Upper Cretaceous coalbed methane total petroleum system, by T. R. Klett and P. A. Le. 15 p.

4. U.S. Geological Survey assessment concepts and model for continuous petroleum accumulations, by J. W. Schmoker. 7 p.

5. U.S. Geological Survey input-data forms for the assessment of continuous petroleum accumulations; the FORSPAN assessment model, by T. R. Klett and J. W. Schmoker. 8 p.

6. Analytic resource assessment method for continuous petroleum accumulations; the ACCESS assessment method, by R. A. Crovelli. 10 p.

7. Calculation of Estimated Ultimate Recovery (EUR) for wells in assessment units of continuous hydrocarbon accumulations, by T. A. Cook. 6 p.

8. Data sources and compilation for the U.S. Geological Survey National Oil and Gas Assessment, by T. R. Klett and J. W. Schmoker. 6 p.

9. Glossary, by T. R. Klett, J. W. Schmoker, R. R. Charpentier, T. S. Ahlbrandt and G. F. Ulmishek. 3 p.

10. Abbreviations and acronyms, compiled by T. R. Klett. 2 p.

11. Conversion factors (approximate), compiled by T. R. Klett. 2 p.

DDS-0069-G. COLORADO, UTAH. Facies analysis and sequence stratigraphic framework of upper Campanian strata (Neslen and Mount Garfield Formations, Bluecastle Tongue of the Castlegate Sandstone, and Mancos Shale), eastern Brook Cliffs, Colorado and



Utah, by M. A. Kirschbaum and R. D. Hettinger. 2004. One CD-ROM. Available on the web at <http://pubs.usgs.gov/dds/dds-069/dds-069-g/>

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DDS-0077. ALASKA. Alaska coal geology, resources, and coalbed methane potential, by R. M. Flores, G. D. Stricker and S. A. Kinney. 2004. One CD-ROM.

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DDS-0079. LOUISIANA. Coastal erosion and wetland change in Louisiana; selected USGS products, by S. J. Williams, J. M. Reid, V. A. Cross and C. F. Polloni. 2003. One DVD-ROM.

This disc has been produced in accordance with the UDF Standard and is therefore capable of being read on any computing platform that has a DVD drive.

DDS-0081. The Long Valley caldera GIS database, by M. Battaglia, M. J. Williams, Stanford University; D. Y. Venezky, D. P. Hill, J. O. Langbein, C. D. Farrar, J. F. Howle, M. Sneed, U.S. Geological Survey; and P. Segall, Stanford University. 2003. One CD-ROM. Available on the web at <http://pubs.usgs.gov/dds/dds-81/>

This CD-ROM has been produced in accordance with the ISO 9660 Standard and is therefore capable of being read on any computing platform with appropriate CD-ROM driver software installed.

FACT SHEETS

Fact Sheets present a wide variety of topics, with a focus on USGS science, programs, projects, and data and how they address issues of public interest. They may summarize results of previously published studies and their implications or to release new information about USGS programs and products. Fact Sheet topics may include progress reports of mission programs, preliminary reports on topical investigations or catastrophic events, hazard and resource assessments, and classification procedures.

FS 0050-99. WEST VIRGINIA. West Virginia. 1999. 4 p. Available on the web at <http://water.usgs.gov/pubs/fs/fs-050-99/>

FS 0185-99. Acadian-Pontchartrain Study Unit, by C. R. Demas, D. K. Demcheck, M. L. Anderson and J. D. Garon. National Water-Quality Assessment Program. 1999. 4 p. Available on the web at <http://la.water.usgs.gov/nawqa/pubs/factsheet.pdf>

FS 0146-00. Mercury in the environment, by Sarah Gerould. 2000. 4 p. Available on the web at <http://www.usgs.gov/themes/factsheet/146-00/>

FS 0036-01. NEVADA, CALIFORNIA. Flooding in the Amargosa River drainage basin, February 23-24, 1998, southern Nevada and eastern California, including the Nevada Test Site, by D. J. Tanko and P. A. Glancy. 2001. 4 p. Available on the web at <http://water.usgs.gov/pubs/fs/fs-036-01/>

FS 0090-01. Real-time ground-water data for the Nation, by W. L. Cunningham. 2001. 2 p. Available on the web at <http://water.usgs.gov/pubs/fs/fs-090-01/>

FS 0105-01. MTBE and other volatile organic compounds; new findings and implications on the quality of source waters used for drinking-water supplies, by J. S. Zogorski, M. J. Moran and P. A. Hamilton. 2001. 2 p. Available on the web at <http://water.usgs.gov/pubs/fs/fs10501/>

FS 0108-01. Uncertainty in annual streamflow and change in reservoir content data from selected stations in the lower Colorado River streamflow-gaging station network, 1995-99, by D. W. Anning. 2002. 4 p. Available on the web at <http://az.water.usgs.gov/factsheets/FS-108-01.pdf>

FS 0128-01. Cooperative Water Program; a partnership in the Nation's water-resources program, by M. H. Brooks. 2001. 2 p. Available on the web at <http://water.usgs.gov/pubs/fs/fs-128-01/>

FS 0021-02. The Atchafalaya Basin; river of trees, by C. R. Demas, S. R. Brazelton, U.S. Geological Survey; and N. J. Powell, U.S. Army Corps of Engineers. 2001. 2 p. Available on the web at <http://la.water.usgs.gov/pdfs/river/tree-web.pdf>

FS 0034-02. Mount Rainier; learning to live with volcanic risk, by C. L. Driedger and K. M. Scott. 2002. 4 p. (Supersedes Fact Sheet 065-97.) Available on the web at <http://geopubs.wr.usgs.gov/fact-sheet/fs034-02/>

FS 0042-02. Effects of urbanization on stream ecosystems, by Carol Couch and P. A. Hamilton. 2002. 2 p. Available on the web at <http://water.usgs.gov/pubs/fs/fs04202/>

FS 0051-02. Glacial ice cores reveal a record of natural and anthropogenic atmospheric mercury deposition for the last 270 years, by D. P. Krabbenhoft and P. F. Schuster. 2002. 2 p. Available on the web at <http://toxics.usgs.gov/pubs/FS-051-02/>

FS 0052-02. WaterWatch; maps and graphs of current water resources conditions, by H. F. Lins. 2002. 2 p. Available on the web at <http://water.usgs.gov/pubs/fs/fs-052-02/>

FS 0063-02. TEXAS. Comparison of dissolved oxygen and aquatic biota between a State 303(d)-listed stream segment and USGS biological reference sites in the San Jacinto River Basin, Texas, 2000, by J. B. Moring. Prepared in cooperation with the Houston-Gavlestone Area Council. 2002. 6 p.

FS 0068-02. WYOMING. Pesticides in ground water; Platte County, Wyoming, 2000-01, by C. A. Eddy-Miller and Laura Gianakos. Prepared in cooperation with the Wyoming Department of Agriculture and the Wyoming Department of Environmental Quality. 2002. 4 p. Available on the web at <http://water.usgs.gov/pubs/fs/fs06802/>

FS 0069-02. WYOMING. Pesticides in ground water; Johnson County, Wyoming, 2000-01, by C. A. Eddy-Miller and Laura Gianakos. Prepared in cooperation with the Wyoming Department of Agriculture and the Wyoming Department of Environmental Quality with assistance from the Lake De Smet Conservation District. 2002. 4 p. Available on the web at <http://water.usgs.gov/pubs/fs/fs06902/>



- FS 0070-02. WYOMING. Pesticides in ground water; Crook County, Wyoming, 2000-01, by C. A. Eddy-Miller and Laura Gianakos. Prepared in cooperation with the Wyoming Department of Agriculture and the Wyoming Department of Environmental Quality. 2002. 4 p. Available on the web at <http://water.usgs.gov/pubs/fs/fs07002/>
- FS 0076-02. Monitoring and assessing our Nation's water quality, by G. E. Mallard and P. A. Hamilton. 2002. 6 p. Available on the web at <http://water.usgs.gov/pubs/fs/fs-076-02/>
- FS 0096-02. ARIZONA. Assessment of spring chemistry along the south rim of Grand Canyon in Grand Canyon National Park, Arizona, by R. J. Hart, U.S. Geological Survey; John Rihs, National Park Service; H. E. Taylor, and S. A. Monroe, U.S. Geological Survey. Prepared in cooperation with the National Park Service. 2002. 4 p. Available on the web at <http://az.water.usgs.gov/factsheets/FS-096-02.pdf>
- FS 0112-02. Fractured-rock aquifers; understanding an increasingly important source of water, by A. M. Shapiro. 2002. 2 p. Available on the web at <http://toxics.usgs.gov/pubs/FS-112-02/>
- FS 0113-02. ARIZONA. Investigation of the geology and hydrology of the Coconino Plateau of northern Arizona; a project of the Arizona Rural Watershed Initiative, by M. E. Flynn and D. J. Bills. Prepared in cooperation with the Arizona Department of Water Resources. 2002. 4 p. Available on the web at <http://az.water.usgs.gov/pubs/FS-113-02intro.html>
- FS 0127-02. COLORADO. Data summary and loading sources for selected water-quality characteristics of streams in blowdown areas, North Fork Elk River watershed, Colorado, March 1999-August 2000, by K. J. Leib and Paul von Guerard. Prepared in cooperation with the U.S. Forest Service. 2003. 6 p. Available on the web at <http://water.usgs.gov/pubs/fs/fs-127-02/>
- FS 0128-02. NWISWeb; new site for the Nation's water data. 2002. 2 p. Available on the web at <http://water.usgs.gov/pubs/fs/fs-128-02/>
- FS 0006-03. New cation-exchange method for field speciation of hexavalent chromium, by J. W. Ball. 2003. 4 p. Available on the web at http://wwwbrr.cr.usgs.gov/projects/GWC_chemtherm/
- FS 0008-03. FLORIDA. Florida Springs Interdisciplinary Science Study, by B. G. Katz, D. W. Griffin, P. W. Swarzenski, S. J. Walsh and H. L. Jelks. 2003. 4 p. Available on the web at http://fl.water.usgs.gov/abstracts/fs008_03_katz.html
- FS 0010-03. LOUISIANA. Fipronil and degradation products in the rice-producing areas of the Mermentau River Basin, Louisiana, February-September 2000, by D. K. Demcheck and S. C. Skrobialowski. National Water-Quality Assessment Program. 2003. 6 p. Available on the web at <http://la.water.usgs.gov/pdfs/NAWQA-fipronil.pdf>
- FS 0011-03. LOUISIANA. Atrazine in southern Louisiana streams, 1998-2000, by D. K. Demcheck and C. M. Swarzenski. National Water-Quality Assessment Program. 2003. 6 p. Available on the web at <http://la.water.usgs.gov/pdfs/atrazine.pdf>
- FS 0016-03. Mercury in stream ecosystems; new studies initiated by the U.S. Geological Survey, by M. E. Brigham, D. P. Krabbenhoft and P. A. Hamilton. 2003. 4 p. Available on the web at <http://water.usgs.gov/pubs/fs/fs-016-03/>
- FS 0023-03. Landsat; a global land-observing program. 2003. 4 p.
- FS 0027-03. Hazards, disasters, and *The National Map*. 2003. 2 p. Available on the web at <http://erg.usgs.gov/isb/pubs/factsheets/fs02703.pdf>
- FS 0031-03. UTAH. Selenium contamination and remediation at Stewart Lake Waterfowl Management Area and Ashley Creek, Middle Green River basin, Utah, by R. C. Rowland, U.S. Geological Survey; D. W. Stephens; Bruce Waddell, U.S. Fish and Wildlife Service; and D. L. Naftz, U.S. Geological Survey. 2003. 6 p. Available on the web at <http://water.usgs.gov/pubs/fs/fs-031-03/>
- FS 0039-03. Is a powerful quake likely to strike in the next 30 years?, by A. J. Michael, S. L. Ross, R. W. Simpson, M. L. C. Zoback, D. P. Schwartz and M. L. Blanpied. 2004. 4 p. Revised 2004. Available on the web at <http://pubs.usgs.gov/fs/fs039-03>
- FS 0040-03. The Norman Landfill Environmental Research Site; what happens to the waste in landfills?, by S. C. Christenson and I. M. Cozzarelli. 2003. 4 p. Available on the web at <http://water.usgs.gov/pubs/fs/fs-040-03/>
- FS 0043-03. COLORADO. Water quality of the Boulder Creek Watershed, Colorado, by P. L. Verplanck, S. F. Murphy and L. B. Barber. 2003. 4 p. Available on the web at <http://pubs.er.usgs.gov/pubs/fs/fs04303>
- FS 0048-03. NEW JERSEY. Real-time surface-water monitoring in New Jersey, 2003, by R. D. Schopp, D. A. Stedfast and A. S. Navoy. 2003. 4 p. Available on the web at <http://pubs.water.usgs.gov/fs04803>
- FS 0054-03. NEW YORK. Hydrogeology and simulation of ground-water flow in a glacial-aquifer system at Cortland County, New York, by T. S. Miller. Prepared in cooperation with Cortland County Soil and Water Conservation District. 2004. 6 p. Available on the web at <http://ny.water.usgs.gov/pubs/fs/fs05403/>
- FS 0055-03. U. S. Geological Survey World Wide Web information. 2003. 2 p.
- FS 0063-03. WISCONSIN. Why study lakes? An overview of USGS lake studies in Wisconsin, by H. S. Garn, J. F. Elder and D. M. Robertson. 2003. 8 p. Available on the web at <http://water.usgs.gov/pubs/fs/fs06303/>
- FS 0067-03. IDAHO, WASHINGTON. Ecological indicators of water quality in the Spokane River, Idaho and Washington, 1998 and 1999, by D. E. MacCoy and T. R. Maret. Prepared in cooperation with Washington State Department of Ecology. 2003. 8 p. Available on the web at <http://id.water.usgs.gov/PDF/factsheet/FS06703.pdf>
- FS 0069-03. Measuring human-induced land subsidence from space, by G. W. Bawden, Michelle Sneed, S. V. Stork and D. L. Gallo-way. 2003. 4 p. Available on the web at <http://water.usgs.gov/pubs/fs/fs06903/>

- FS 0072-03. NEBRASKA. Is septic waste affecting drinking water from shallow domestic wells along the Platte River in eastern Nebraska?, by I. M. Verstraeten, U.S. Geological Survey; G. S. Fetterman, Lower Platte River Corridor Alliance; S. K. Seabee, M. T. Meyer, and T. D. Bullen, U.S. Geological Survey. Prepared in cooperation with the Lower Platte South Natural Resources District, the Lower Platte North Natural Resources District, the Papio-Missouri River Natural Resources District, and the Lower Platte River Corridor Alliance. 2004. 4 p. Available on the web at <http://water.usgs.gov/pubs/fs/fs07203/>
- FS 0074-03. CALIFORNIA. Availability of ground-water data for California, water year 2002, by J. A. Huff. 2003. 2 p. Available on the web at <http://water.usgs.gov/pubs/fs/fs07403/>
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- FS 0076-03. Effects of urban development on floods, by C. P. Konrad. 2003. 4 p. Available on the web at <http://water.usgs.gov/pubs/fs/fs07603/>
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- FS 0079-03. MASSACHUSETTS. Highlights of the USGS Cooperative Water Program in Massachusetts, by P. K. Weiskel. 2003. 2 p. Available on the web at <http://pubs.water.usgs.gov/fs07903>
- FS 0080-03. Morgan Creek watershed selected for a national water-quality study, by T. C. Hancock, P. D. Capel and J. M. Denver. 2003. 2 p. Available on the web at <http://water.usgs.gov/pubs/fs/fs08003/>
- FS 0081-03. Lower Merced River and Mustang Creek watersheds selected for a national water-quality study, by J. L. Domagalski and P. D. Capel. 2003. 2 p. Available on the web at <http://water.usgs.gov/pubs/fs/fs08103/>
- FS 0082-03. Granger Drain subbasin selected for a national water-quality study, by Kathy McCarthy and P. D. Capel. 2003. 2 p. Available on the web at <http://water.usgs.gov/pubs/fs/fs08203/>
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- FS 0088-03. TEXAS. A chronicle of organochlorine contamination in Clear Creek, Galveston and Harries Counties, Texas, 1960-2002, as recorded in sediment cores, by B. J. Mahler and P. C. Van Metre. Prepared in cooperation with the U.S. Environmental Protection Agency. 2003. 4 p.
- FS 0089-03. TEXAS. Quality of sediment discharging from the Barton Springs system, Austin, Texas, 2000-2002, by B. J. Mahler. Prepared in cooperation with the U.S. Fish and Wildlife Service. 2003. 6 p. Available on the web at <http://water.usgs.gov/pubs/fs/fs-089-03/>
- FS 0091-03. The influence of groundwater on nitrogen delivery to the Chesapeake Bay, by S. W. Phillips and B. D. Lindsey. 2003. 6 p. Available on the web at <http://md.water.usgs.gov/publications/fs-091-03/index.html>
- FS 0093-03. MASSACHUSETTS. Tracking polychlorinated biphenyls in the Millers River Basin, Massachusetts, by B. E. Taggart, J. A. Colman and M. G. Cooke. 2003. 6 p. Available on the web at <http://water.usgs.gov/pubs/fs/fs09303/>
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- FS 0098-03. USGS National Assessment of Oil and Gas online (NOGA Online), by L. R. H. Biewick, G. L. Gunther, C. C. Skinner, C. J. Schenk and D. A. Ferderer. 2003. 4 p.
- FS 0100-03. Tracking changes in Yellowstone's restless volcanic system, by S. R. Brantley, J. B. Lowenstern, R. L. Christiansen, R. B. Smith, Henry Heasler, Greg Waite and C. W. Wicks, Jr. 2004. 4 p. Available on the web at <http://pubs.usgs.gov/fs/fs100-03/>
- FS 0101-03. Geographic research at Lake Tahoe, by C. G. Raumann, Elizabeth Schwerer Duffie, Carol Ostergren and William Kaiser. Prepared in cooperation with the Environmental Protection Agency, Desert Research Institute, and Tahoe Regional Planning Agency. 2003. 2 p. Available on the web at http://www-wmc.wr.usgs.gov/news/docs-04/tahoe_fact_101-03.pdf
- FS 0103-03. Ground-water depletion across the Nation, by J. B. Bartolino and W. L. Cunningham. 2003. 4 p.
- FS 0104-03. LakeVOC; a computer model to estimate the concentration of volatile organic compounds in lakes and reservoirs, by D. A. Bender, W. E. Asher and J. S. Zogorski. National Water-Quality Assessment Program; prepared in cooperation with the University of Washington and the Oregon Health & Science University. 2003. 6 p. Available on the web at <http://water.usgs.gov/pubs/fs/fs10403/>
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SIM-2816. MONTANA, WYOMING, IDAHO. Geologic map of the Hebgen Lake Quadrangle, Beaverhead, Madison, and Gallatin Counties, Montana, Park and Teton Counties, Wyoming, and Clark and Fremont Counties, Idaho, by J. M. O'Neill and R. L.

Christiansen. 2004. Lat 44°30' to 45°, long 111° to 112°. Scale 1:100,000 (1 inch = about 1.6 miles). Sheet 58 by 32 inches (in color). Available on the web at <http://pubs.usgs.gov/sim/2816/>

SIM-2819. World Heritage Site; Kluane/Wrangell-St. Elias/Glacier Bay/Tatshenshini-Alsek [Bien du patrimoine mondial; Kluane/Wrangell-St. Elias/Glacier Bay/Tatshenshini-Alsek], by K. A. Labay and F. H. Wilson. 2004. Lat 57°51' to 62°55', long 133°09' to 146°30'. Scale 1:750,000 (1 inch = about 12 miles). Sheet 37 by 33 inches (in color). In English, with French translation. Available on the web at <http://pubs.usgs.gov/sim/2004/2819/>

SIM-2820. COLORADO. Historic trail map of the Leadville 1°×2° quadrangle, central Colorado, by G. R. Scott. Prepared in cooperation with the Denver Public Library, Western History and Genealogy Department, and the Colorado Railroad Museum. 2004. Lat 39° to 40°, long 106° to 108°. Scale 1:250,000 (1 inch = about 4 miles). Sheet 56 by 40 inches (in color). (Accompanied by 90 page text.) Available on the web at <http://pubs.usgs.gov/sim/2004/2820/>

SIM-2822. TENNESSEE. Surficial geologic map of the southeast Memphis Quadrangle, Shelby County, Tennessee, by D. W. Moore and S. F. Diehl. 2004. Lat 35° to 35°07'30", long 89°52'30" to 90°. Scale 1:24,000 (1 inch = 2000 feet). Sheet 34 by 40 inches (in color). (Map-on-demand.) Available on the web at <http://pubs.usgs.gov/sim/2004/2822/>

SIM-2823. TENNESSEE, ARKANSAS. Surficial geologic map of the southwest Memphis Quadrangle, Shelby County, Tennessee, and Crittenden County, Arkansas, by D. W. Moore and S. F. Diehl. 2004. Lat 35° to 35°07'30", long 90° to 90°07'30". Scale 1:24,000 (1 inch = 2000 feet). Sheet 35 by 34 inches (in color). (Map-on-demand.) Available on the web at <http://pubs.usgs.gov/sim/2004/2823/>

SIM-2825. COLORADO. Geologic map of Gunnison Gorge National Conservation Area, Delta and Montrose Counties, Colorado, by K. S. Kellogg, W. R. Hansen, U.S. Geological Survey; K. S. Tucker, U.S. Bureau of Land Management; and D. P. VanSistine, U.S. Geological Survey. Prepared in cooperation with the U.S. Bureau of Land Management. 2004. Lat 38°34'30" to 38°45'30", long 107°45' to 107°55'. Scale 1:45,000 (1 inch = 3,750 feet). Sheet 56 by 40 inches (in color). Available on the web at <http://pubs.usgs.gov/sim/2004/2825/>

SIM-2826. WASHINGTON. Geologic map of the Ariel Quadrangle, Clark and Cowlitz Counties, Washington, by R. C. Evarts. 2004. Lat 45°52'30" to 46°, long 122°30' to 122°37'30". Scale 1:24,000 (1 inch = 2,000 feet). Sheet 60 by 36 inches (in color). (Accompanied by 35 page text.) (Map-on-demand.) Available on the web at <http://pubs.usgs.gov/sim/2004/2826/>

SIM-2827. WASHINGTON. Geologic map of the Woodland Quadrangle, Clark and Cowlitz Counties, Washington, by R. C. Evarts. 2004. Lat 45°52'30" to 46°, long 122°37'30" to 122°45'. Scale 1:24,000 (1 inch = 2,000 feet). Sheet 48 by 36 inches (in color). (Accompanied by 38 page text.) (Map-on-demand.) Available on the web at <http://pubs.usgs.gov/sim/2004/2827/>



- SIM-2829. MONTANA. Precambrian basement geologic map of Montana; an interpretation of aeromagnetic anomalies, by P. K. Sims, J. M. O'Neill, Viki Bankey and E. D. Anderson. 2004. Lat 46° to 48°, long 104° to 116°. Scale 1:1,000,000 (1 inch = 16 miles). Sheet 55 by 38 inches (in color). (Map-on-demand.) Available on the web at <http://pubs.usgs.gov/sim/2004/2829/>
- SIM-2834. OREGON, WASHINGTON. Geologic map of the Saint Helens Quadrangle, Columbia County, Oregon, and Clark and Cowlitz Counties, Washington, by R. C. Evarts. 2004. Lat 45°45' to 45°52'30", long 122°45' to 122°52'30". Scale 1:24,000 (1 inch = 2,000 feet). Sheet 34 by 44 inches (in color). (Accompanied by 23 page text.) (Map-on-demand.) Available on the web at <http://pubs.usgs.gov/sim/2004/2834/>
- SIM-2835. WYOMING, COLORADO. Geologic map of the Peach Orchard Flat Quadrangle, Carbon County, Wyoming, and descriptions of new stratigraphic units in the Upper Cretaceous Lance Formation and Paleocene Fort Union Formation, eastern Greater Green River basin, Wyoming-Colorado, by J. G. Honey and R. D. Hettinger. 2004. Two sheets. Lat 41°07'30" to 41°15', long 107°37'30" to 107°45'. Scale 1:24,000 (1 inch = 2,000 feet). Sheet 1, 44 by 37 inches; sheet 2, 35 by 42 inches (both in color). (Accompanied by 9 page text.) (Map-on-demand.) Available on the web at <http://pubs.usgs.gov/sim/2004/2835/>
- SIM-2836. TENNESSEE. Surficial geologic map of the Ellendale Quadrangle, Shelby County, Tennessee, by R. B. Van Arsdale. 2004. Lat 35° to 35°15', long 89°45' to 89°52'30". Scale 1:24,000 (1 inch = 2,000 feet). Sheet 28 by 34 inches (in color). (Map-on-demand.) Available on the web at <http://pubs.usgs.gov/sim/2004/2836/>
- SIM-2837. TENNESSEE. Surficial geologic map of the Germantown Quadrangle, Shelby County, Tennessee, by R. B. Van Arsdale. 2004. Lat 35° to 35°07'30", long 89°45' to 89°52'30". Scale 1:24,000 (1 inch = 2,000 feet). Sheet 32 by 35 inches (in color). (Map-on-demand.) Available on the web at <http://pubs.usgs.gov/sim/2004/2837/>
- SIM-2838. TENNESSEE, ARKANSAS. Surficial geologic map of the northeast Memphis Quadrangle, Shelby County, Tennessee, and Crittenden County, Arkansas, by Jason Broughton and R. B. Van Arsdale. 2004. Lat 35°07'30" to 35°15', long 90° to 90°07'30". Scale 1:24,000 (1 inch = 2,000 feet). Sheet 29 by 34 inches (in color). (Map-on-demand.) Available on the web at <http://pubs.usgs.gov/sim/2004/2838/>
- SIM-2839. TENNESSEE. Surficial geologic map of the northeast Memphis Quadrangle, Shelby County, Tennessee, by Randy Cox. 2004. Lat 35°07'30" to 35°15', long 89°52'30" to 90°. Scale 1:24,000 (1 inch = 2,000 feet). Sheet 33 by 34 inches (in color). (Map-on-demand.) Available on the web at <http://pubs.usgs.gov/sim/2004/2839/>
- SIM-2847. ARKANSAS. Geologic map of the Hasty Quadrangle, Boone and Newton Counties, Arkansas, by M. R. Hudson and K. E. Murray. 2004. Lat 36° to 36°07'30", long 93° to 93°07'30". Scale 1:24,000 (1 inch = 2,000 feet). Sheet 44 by 34 inches (in color). (Map-on-demand.) Available on the web at <http://pubs.usgs.gov/sim/2004/2847/>
- SIM-2848. Earthquakes and faults in the San Francisco Bay area (1970-2003), by B. M. Sleeter, J. P. Calzia, S. R. Walter, F. L. Wong, U.S. Geological Survey; and G. J. Saucedo, California Geological Survey. 2004. Lat 36°30' to 39°N, long 120°50'W to 123°30'W. Scale 1:300,000 (1 inch = about 4.75 miles). Sheet 36 by 48 inches (in color). Available on the web at <http://pubs.usgs.gov/sim/2004/2848/>
- SIM-2849. COLORADO. Correlation of Middle Jurassic San Rafael Group and related rocks from Bridgeport to Ouray in western Colorado, by R. B. O'Sullivan. 2004. Lat 37° to 39°, long 107°45' to 108°45'. Sheet 42 by 30 inches. (Map-on-demand.) Available on the web at <http://pubs.usgs.gov/sim/2004/2849/>
- SIM-2850. ALASKA. Surficial geologic map of the Tanacross B-6 quadrangle, east-central Alaska, by P. E. Carrara. 2004. Lat 63°15' to 63°30', long 143°30' to 144°. Scale 1:63,360 (1 inch = 1 mile). Sheet 68 by 36 inches (in color). (Map-on-demand.) Available on the web at <http://pubs.usgs.gov/sim/2004/2850/>
- SIM-2851. CALIFORNIA. Geologic map of the Cerro Gordo Peak 7.5' quadrangle, Inyo County, California, by Paul Stone, G. C. Dunne, J. E. Conrad, B. J. Swanson, C. H. Stevens and Z. C. Valin. 2004. Lat 36°30' to 36°37'30"N, long 117°45' to 117°52'30"W. Scale 1:24,000 (1 inch = 2,000 feet). Sheet 36 by 42 inches (in color). (Accompanied by 16 page text.) (Map-on-demand.) Available on the web at <http://pubs.usgs.gov/sim/2004/2851/>
- SIM-2852. CALIFORNIA. Map showing estimated sediment yield from coastal landslides and active slope distribution along the Big Sur coast, Monterey and San Luis Obispo Counties, California, by C. J. Hapke, K. R. Green and Kate Dallas. Prepared in cooperation with the California Department of Transportation. 2004. Lat 35.55° to 37°, long 121.05° to 123.17°. Sheet 48 by 34 inches (in color). (Map-on-demand.) Available on the web at <http://pubs.usgs.gov/sim/2004/2852/>
- SIM-2853. CALIFORNIA. Map showing coastal cliff retreat rates along the Big Sur coast, Monterey and San Luis Obispo Counties, California, by C. J. Hapke and K. R. Green. Prepared in cooperation with the California Department of Transportation. 2004. Lat 35.55° to 37°, long 121.05° to 123.17°. Sheet 48 by 34 inches (in color). (Map-on-demand.) Available on the web at <http://pubs.usgs.gov/sim/2004/2853/>
- SIM-2856. ALASKA. Surficial geologic map of the Tanacross B-5 quadrangle, east-central Alaska, by P. E. Carrara. 2004. Lat 63°15' to 63°30', long 143° to 143°30'. Scale 1:63,360 (1 inch = 1 mile). Sheet 42 by 24 inches (in color). (Map-on-demand.) Available on the web at <http://pubs.usgs.gov/sim/2004/2856/>

MISCELLANEOUS INVESTIGATIONS SERIES MAPS

These maps are prepared on planimetric or topographic bases, describe regular and irregular areas at various scales, and cover a wide variety of format and subject matter. The series includes 7 1/2-minute quadrangle photogeologic maps on planimetric bases that show geology as interpreted from aerial photographs. Series also includes maps of Mars and the Moon.

I-2742. FLORIDA. South Florida Everglades, by J. W. Jones, Jean-Claude Thomas and Gregory Desmond. 2001. Lat 25° to



25°55', long 80° to 81°24'. Scale 1:100,000 (1 inch = about 1.6 miles). Sheet 65 by 44 1/2 inches (in color). Available on the web at http://sofia.usgs.gov/projects/remote_sens/sflsatmap.html

- I-2756. FLORIDA. Northern Everglades, Florida, by J. W. Jones, Jean-Claude Thomas and Gregory Desmond. 2002. Lat 22°55' to 26°43', long 80°01' to 81°08'. Scale 1:100,000 (1 inch = about 1.6 miles). Sheet 53 by 42 inches (in color). Available on the web at http://sofia.usgs.gov/projects/remote_sens/sflsatmap.html

GEOLOGIC INVESTIGATIONS SERIES

In August 1996, the I-map series name was changed from Miscellaneous Investigations Series Maps to Geologic Investigations Series. All geologic maps approved for publication after August 1996 and prior to January 2004 are published in the Geologic Investigations Series. The series consists of maps on planimetric or topographic bases; of regular and irregular areas; of various scales; on a wide variety of format and subject matter. The series includes 7 1/2-minute quadrangle photogeologic maps on planimetric bases that show geology as interpreted from aerial photographs and maps of Mars and the Moon.

- I-2600-E. Coastal-change and glaciological map of the Eights Coast area, Antarctica; 1972-2001, by Charles Swithinbank, University of Cambridge; R. S. Williams, Jr., J. G. Ferrigno, K. M. Foley, C. E. Rosanova, U.S. Geological Survey; and L. M. Dailide, George Mason University. Prepared in cooperation with the University of Cambridge, Scott Polar Research Institute, United Kingdom. 2004. Lat 76° to 71°S, long 80° to 104°W. Scale 1:1,000,000 (1 inch = about 16 miles). Sheet 43 by 28 inches (in color). (Accompanied by 11 page text.)

- I-2602. GEORGIA. Geologic map of the Atlanta 30' × 60' quadrangle, Georgia, by M. W. Higgins, U.S. Geological Survey; T.J. Crawford, West Georgia College; R. L. Atkins, Lilburn, GA; and R. F. Crawford, Atlanta, GA. 2003. Lat 33°30' to 34°, long 84° to 85°. Scale 1:100,000 (1 inch = about 1.6 miles). Sheet 54 by 41 inches (in color). (Accompanied by 16 page text.)

- I-2655. UTAH, ARIZONA. Geologic map of the Kanab 30' × 60' quadrangle, Utah and Arizona, by E. G. Sable and Richard Hereford. 2004. Lat 37° to 37°30', long 112° to 113°. Scale 1:100,000 (1 inch = about 1.6 miles). Sheet 57 by 42 inches (in color). Available on the web at <http://pubs.usgs.gov/imap/i2655/>

- I-2660. WASHINGTON. Geologic map of the Mount Baker 30- by 60-minute quadrangle, Washington, by R. W. Tabor, R. A. Haugerud, Wes Hildreth, U.S. Geological Survey; and E. H. Brown, Western Washington University. Prepared in cooperation with the Washington State Department of Natural Resources, Division of Geology and Earth Resources. 2003. Two sheets. Lat 48°30' to 49°, long 121° to 122°. Scale 1:100,000 (1 inch = about 1.6 miles). Sheet 1, 49 by 41 inches; sheet 2, 37 by 39 inches (both in color). (Accompanied by 74 page text.) Available on the web at <http://pubs.usgs.gov/imap/i2660/>

- I-2683. OREGON. Geologic map of the Bend 30- × 60-minute quadrangle, central Oregon, by D. R. Sherrod, U.S. Geological Survey; E. M. Taylor, Oregon State University; M. L. Ferns, Oregon Department of Geology and Mineral Industries; W. E. Scott, U.S. Geological Survey; R. M. Conrey, Washington State University; and G. A. Smith, University of New Mexico. 2004. Two sheets. Lat 44° to 44°30', long 121° to 122°. Scale 1:100,000 (1 inch = about

1.6 miles). Sheet 1, 51 by 41 inches; sheet 2, 39 by 32 inches (both in color). (Accompanied by 48 page text.)

- I-2689. Cascadia; physiography, by R. A. Haugerud. Prepared in cooperation with the Geological Survey of Canada. 2004. Lat 39°N to 53°N, long 116°W to 133°W. Scale 1:2,000,000 (1 inch = about 32 miles). Sheet 54 by 37 inches (in color). Available on the web at <http://pubs.usgs.gov/imap/i2689/>

- I-2753. Geologic map of the MTM 85080 Quadrangle, Chasma Boreale region of Mars, by K. E. Herkenhoff. Prepared for the National Aeronautics and Space Administration. 2003. Lat 82.5° to 87.5°, long 60° to 100°. Scale 1:500,000 (1 mm = 500 m) at 87.5° latitude; Polar Stereographic Projection. Sheet 40 by 38 inches (in color). Available on the web at <http://pubs.usgs.gov/imap/i2753/>

- I-2759. HAWAII. Geologic map of the summit region of Kilauea Volcano, Hawaii, by C. A. Neal and J. P. Lockwood. 2003. Lat 19°20' to 19°27'30", long 155°12'30" to 155°20'. Scale 1:24,000 (1 inch = 2,000 feet). Sheet 49 by 37 inches (in color). (Accompanied by 14 page text.) Available on the web at <http://pubs.usgs.gov/imap/i2759/>

- I-2771. ARIZONA. Map showing Quaternary geology and geomorphology of the Lonely Dell Reach of the Paria River, Lees Ferry, Arizona, by Richard Hereford. Prepared in cooperation with the National Park Service. 2003. Lat 36°51'30" to 36°54', long 111°35' to 111°37'30". Scale 1:5,000 (1 inch = 416.5 feet). Sheet 51 by 39 inches (in color). (Accompanied by 21 page text.)

Comparative landscape photographs of the Lonely Dell area and the mouth of the Paria River, by R. H. Webb and Richard Hereford. 21 p.

- I-2775. MISSOURI. Geologic map of the Freemont Quadrangle, Shannon, Carter, and Oregon Counties, Missouri, by R. C. Orndorff. 2003. Lat 36°52'30" to 37°, long 91°07'30" to 91°15'. Scale 1:24,000 (1 inch = 2,000 feet). Sheet 45 by 33 inches (in color). Available on the web at <http://pubs.usgs.gov/imap/i2775/>

- I-2778. ALASKA. Geologic map of the Katmai volcanic cluster, Katmai National Park, Alaska, by Wes Hildreth and Judy Fierstein. 2003. Lat 58° to 58°30', long 154°30' to 156°30'. Scale 1:63,360 (1 inch = 1 mile). Sheet 62 by 42 inches (in color). (Accompanied by 43 page text.) Available on the web at <http://pubs.usgs.gov/imap/i2778/>

- I-2779. Geologic map of the Aino Planitia Quadrangle, (V-46), Venus, by E. R. Stofan and J. E. Guest. Prepared for the National Aeronautics and Space Administration. 2003. Lat -50° to -25°, long 90° to 60°. Scale 1:4,711,886 (1 mm = 4.712 km) at 25° latitude and 1:5,000,000 at -34° and -73° latitudes; Lambert Projection. Sheet 52 by 40 inches (in color). Available on the web at <http://pubs.usgs.gov/imap/i2779/>

- I-2792. Geologic map of the Atalanta Planitia Quadrangle (V-4), Venus, by M. A. Ivanov and J. W. Head. Prepared for the National Aeronautics and Space Administration. 2004. Lat 50° to 75°, long 180° to 120°. Scale 1:4,711,886 (1 mm = 4.712 km) at 25° latitude and 1:5,000,000 at -34° and -73° latitudes; Lambert Projection. Sheet 54 by 40 inches (in color).

- I-2793. Topographic map of the Margaritifer Chaos region of Mars; MTM 500k-10/337E OMKT. Prepared for the National Aeronau-



tics and Space Administration. 2003. Lat -12.6° to -7.4°, long 340.1°E to 334.9°E. Scale 1:502,000 (1 mm = 502 m) at 330°E longitude; Transverse Mercator projection. Sheet 28 by 40 inches (in color). Available on the web at <http://geopubs.wr.usgs.gov/i-map/i2793/>

I-2794. Geologic map of the Bereghinya Planitia Quadrangle (V-8), Venus, by G. E. McGill, University of Massachusetts. Prepared for the National Aeronautics and Space Administration. 2004. Lat 25° to 50°N, long 30° to 0°E. Scale 1:4,711,886 (1 mm = 4.712 km) at 25° latitude and 1:5,000,000 at 34° and 73° latitudes; Lambert Projection. Sheet 43 1/2 by 34 1/2 inches (in color). (Accompanied by 17 page text.) Available on the web at <http://geopubs.wr.usgs.gov/imap/i2694/>

I-2795. Topographic map of the northwest Ascræus Mons region of Mars; MTM 500k 15/252E OMKT. Prepared in cooperation with the National Aeronautics and Space Administration. 2004. Lat 12.4° to 17.6°, long 255.1°E to 249.9°E. Scale 1:502,000 (1 mm = 502 m) at 250°E longitude; Transverse Mercator Projection. Sheet 27 by 40 inches (in color). Available on the web at <http://pubs.usgs.gov/imap/i2795/>

I-2796. Topographic map of the northeast Ascræus Mons region of Mars; MTM 500k 15/257E OMKT. Prepared in cooperation with the National Aeronautics and Space Administration. 2004. Lat 12.4° to 17.6°, long 260.1°E to 254.9°E. Scale 1:502,000 (1 mm = 502 m) at 250°E longitude; Transverse Mercator Projection. Sheet 27 by 40 inches (in color). Available on the web at <http://pubs.usgs.gov/imap/i2796/>

I-2797. Topographic map of the southeast Ascræus Mons region of Mars; MTM 500k 10/257E OMKT. Prepared in cooperation with the National Aeronautics and Space Administration. 2004. Lat 7.4° to 12.6°, long 260.1°E to 254.9°E. Scale 1:502,000 (1 mm = 502 m) at 250°E longitude; Transverse Mercator Projection. Sheet 27 by 40 inches (in color). Available on the web at <http://pubs.usgs.gov/imap/i2797/>

I-2798. Topographic map of the southwest Ascræus Mons region of Mars; MTM 500k 10/252E OMKT. Prepared in cooperation with the National Aeronautics and Space Administration. 2004. Lat 7.4° to 12.6°, long 260.1°E to 254.9°E. Scale 1:502,000 (1 mm = 502 m) at 250°E longitude; Transverse Mercator Projection. Sheet 27 by 40 inches (in color). Available on the web at <http://pubs.usgs.gov/imap/i2798/>

I-2800. Visualizing the geology of lake trout spawning sites; northern Lake Michigan, by Peter Dartnell, Peter Barnes, U.S. Geological Survey; J. V. Gardner, University of New Hampshire; and Kristen Lee, U.S. Geological Survey. Prepared in cooperation with the U.S. Army Corps of Engineers. 2004. Two sheets. Lat 45°35' to 45°40', long 85°57' to 86° and lat 45°42' to 45°46', long 85°20' to 85°23' and lat 84°58' to 85°13', long 45°22' to 45°23'; sheet 2, lat 85°47' to 85°49', long 45°37' to 45°40' and lat 85°10' to 85°13', long 45°37' to 45°40' and lat 45°42' to 45°47', long 85°40' to 85°44'. Sheet 1, scale 1:25,000 (1 inch = about 2,083 feet) and 1:22,000 (1 inch = about 1,833 feet) and 1:21,000 (1 inch = 1,750 feet); sheet 2, scale 1:25,000 (1 inch = about 2,083 feet) and 1:22,000 (1 inch = about 1,833 feet). Sheet 1, 46 by 38 inches; sheet 2, 43 by 37 inches (both in color). Available on the web at <http://pubs.usgs.gov/imap/i2800/>

I-2801. MISSOURI. Geologic map of the Wilderness and Handy Quadrangles, Oregon, Carter, and Ripley Counties, Missouri, by R. W. Harrison and R. C. McDowell. 2003. Lat 36°45' to 36°52'30", long 91° to 91°15'. Scale 1:24,000 (1 inch = 2,000 feet). Sheet 39 by 35 inches (in color).

I-2805. Topographic map of the west Candor Chasma region of Mars, MTM 500k -05/282E OMKT. Prepared for the National Aeronautics and Space Administration. 2004. Lat -7.5° to -2.5°, long 285° E to 280° E. Scale 1:502,000 (1 mm = 502 m) at 290°E (70° W) longitude; Transverse Mercator Projection. Sheet 27 by 40 inches (in color). Available on the web at <http://pubs.usgs.gov/imap/i2805/>

I-2806. Topographic map of the Tithonium Chasma region of Mars, MTM 500k -05/277E OMKT. Prepared for the National Aeronautics and Space Administration. 2004. Lat -7.5° to -2.5°, long 280° E to 275° E. Scale 1:502,000 (1 mm = 502 m) at 270° E (90° W) longitude; Transverse Mercator Projection. Sheet 28 by 41 inches (in color). Available on the web at <http://pubs.usgs.gov/imap/i2806/>

I-2807. Topographic map of the Ophir and central Candor Chasmata region of Mars MTM 500k -05/287E OMKT. Prepared for the National Aeronautics and Space Administration. 2004. Lat -7.5° to -2.5°, long 290° E to 285° E. Scale 1:502,000 (1 mm = 502 m) at 290° E (70° W) longitude; Transverse Mercator Projection. Sheet 27 by 40 inches (in color). Available on the web at <http://pubs.usgs.gov/imap/i2807/>

I-2812. Earthquakes in the central United States; 1699-2002, by R. L. Wheeler, E. M. Omdahl, R. L. Dart, G. D. Wilkerson and R. H. Bradford. Prepared in cooperation with the Central United States Earthquake Consortium and the Association of CUSEC State Geologists. 2003. Lat 34° to 42°, long 86° to 93°. Scale 1:1,250,000 (1 inch = about 19 miles). Sheet 57 by 43 inches (in color). Available on the web at <http://pubs.usgs.gov/imap/i-2812/>

I-2847. ARKANSAS. Geologic map of the Hasty Quadrangle, Boone and Newton Counties, Arkansas, by M. R. Hudson and K. E. Murray. 2004. Lat 36° to 36°07'30", long 93° to 93°07'30". Scale 1:24,000 (1 inch = 2,000 feet). Sheet 44 by 33.5 inches (in color). (Map-on-demand.) Available on the web at <http://pubs.usgs.gov/sim/2004/2847>

CIRCUM-PACIFIC MAP SERIES

CP-0048. Geologic map of the Circum-Pacific region, Arctic sheet, by G. W. Moore, Chair, Arctic Panel, Circum-Pacific Council for Energy and Mineral Resources. Land Geology by G. W. Moore, Oregon State University; K. J. Drummond, Canada National Energy Council; Yoji Teraoka, Geological Survey of Japan; A. V. Okulitch, Geological Survey of Canada; I. S. Gramberg, Y. E. Pogrebitsky, and E. E. Musatov, Ministry of Geology, St. Petersburg, Russia; L. M. Parfenov and B. A. Natal'in, Russia Academy of Sciences; Haukur Johannesson, Náttúrufræðistofnun Íslands, Iceland. Seafloor Sediment by F. W. McCoy, University of Hawaii. Holocene Volcanoes by Tom Simkin and Lee Siebert, Smithsonian Institution. Deep-Sea Columnar Sections by T. R. Swint-Iki, and A. L. Gartner, U.S. Geological Survey. 2000. Lat 26° to 90°, long 180°W to 180°E. Scale 1:10,000,000 (1 inch = about 160 miles). Sheet 55 by 41 inches (in color). (Accompanied by 21 page text.)



MISCELLANEOUS FIELD STUDIES MAPS

These are multicolor or black and white maps on topographic or planimetric bases, covering quadrangle or irregular areas; various scales. Pre-1971 maps show bedrock geology in relation to specific mining or mineral-deposit problems; the majority of post-1971 maps are preliminary black and white maps on various various subjects such as environmental studies or Wilderness mineral investigations.

- MF-2327-D. NEVADA. Geologic insights and suggestions on mineral potential based on analyses of geophysical data of the southern Toquima Range, Nye County, Nevada, by D. R. Shawe, R. P. Kucks and T. G. Hildenbrand. 2004. Lat 38°30' to 38°45', long 116°45' to 117°07'30". Scale 1:48,000 (1 inch = 4,000 feet). Sheet 71 by 40 inches (in color). (Accompanied by 14 page text.) (Map-on-demand.) Available on the web at <http://pubs.usgs.gov/mf/2004/2327/D/>
- MF-2396. ARIZONA. Geologic map of the Lower Hurricane Wash and vicinity, Mohave County, northwestern Arizona, by G. H. Billingsley and S. E. Graham. Prepared in cooperation with the National Park Service and the Bureau of Land Management. 2003. Lat 36°45' to 37°, long 113°15' to 113°30'. Scale 1:31,680 (1 inch = 2,640 feet). Sheet 39 by 45 inches (in color). (Accompanied by 27 page text.) (Map-on-demand.) Available on the web at <http://geopubs.wr.usgs.gov/map-mf/mf2396/>
- MF-2410. ARIZONA. Geologic map of the Upper Hurricane Wash and vicinity, Mohave County, northwestern Arizona, by G. H. Billingsley and H. C. Dyer. Prepared in cooperation with the National Park Service and the Bureau of Land Management. 2003. Lat 36°30' to 36°45', long 113°15' to 113°30'. Scale 1:31,680 (1 inch = 2,640 feet). Sheet 38 by 44 inches (in color). (Accompanied by 23 page text.) (Map-on-demand.) Available on the web at <http://geopubs.wr.usgs.gov/map-mf/mf2410/>
- MF-2413. ALASKA. Geologic and fossil locality maps of the west-central part of the Howard Pass Quadrangle and part of the adjacent Misheguk Mountain Quadrangle, western Brooks Range, Alaska, by J. H. Dover, I. L. Tailleur and J. A. Dumoulin. 2004. Two sheets. Lat 68°15' to 68°45', long 157°12' to 159°36'. Scale 1:100,000 (1 inch = about 1.6 miles). Sheet 1, 46 by 48 inches; sheet 2, 46 by 29 inches (both in color). (Accompanied by 76 page text.) (Map-on-demand.) Available on the web at <http://pubs.usgs.gov/mf/2004/2413>
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- MF-2419. NEW MEXICO. Geologic map of the Puye Quadrangle, Los Alamos, Rio Arriba, Sandoval, and Santa Fe Counties, New Mexico, by D. P. Dethier. 2003. Lat 35°52'30" to 36°, long 106°07'30" to 106°15'. Scale 1:24,000 (1 inch = 2,000). Sheet 40 by 30 inch (in color). (Map-on-demand.) Available on the web at <http://pubs.usgs.gov/mf/2003/mf-2419/>
- MF-2422. NEVADA. Geologic map of south-central Yucca Mountain, Nye County, Nevada, by R. P. Dickerson, S.M. Stoller Corporation; R. M. Drake, II, U.S. Geological Survey. Prepared in cooperation with the U.S. Department of Energy, Yucca Mountain Site Characterization Office. 2004. Lat 36°47'30" to 36°49', long 116°26' to 116°29'. Scale 1:6,000 (1 inch = 500 feet). Sheet 42 by 45 inches (in color). (Accompanied by 23 page text.) (Map-on-demand.) Available on the web at <http://pubs.usgs.gov/mf/2004/mf-2422/>
- MF-2426. IDAHO, MONTANA. Geologic map of the Bonners Ferry 30' x 60' quadrangle, Idaho and Montana, by F. K. Miller and R. F. Burmester. 2004. Lat 48°30' to 49°, long 116° to 117°. Scale 1:100,000 (1 inch = about 1.6 miles). Sheet 33 by 52 inches (in color). (Accompanied by 31 page text.) (Map-on-demand.) Available on the web at <http://geopubs.wr.usgs.gov/map-mf/mf2426/>
- MF-2427. ARIZONA. Geologic map of the lower Grand Wash Cliffs and vicinity, Mohave County, northwestern Arizona, by G. H. Billingsley, L. S. Beard, S. S. Priest, J. L. Wellmeyer and D. L. Block. Prepared in cooperation with the National Park Service and Bureau of Land Management. 2004. Lat 36°15' to 36°30', long 113°45" to 114°. Scale 1:31,680 (1 inch = 2,640 feet). Sheet 40 by 56 inches (in color). (Accompanied by 24 page text.) (Map-on-demand.) Available on the web at <http://pubs.usgs.gov/mf/2004/2427/>
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SPECIAL MAPS

- Antarctica photomap; McMurdo Station. 1999. Scale 1:1,800 (1 inch = 150 feet). Sheet 45 by inches (in color).
- Darwin Glacier, Antarctica; satellite image map. 2001. Lat 80°15' to 70°30'S, long 161° to 157°E. Scale 1:100,000 (1 inch = about 1.6 miles). Sheet 33 by 30.3 inches (in color).
- MONTANA. Glacier National Park; part of Waterton-Glacier International Peace Park, Montana. 1998. Lat 48°13' to 49°, long 113°10' to 114°30'. Scale 1:100,000 (1 inch = about 1.6 miles). Sheet 37 by 42.5 inches (in color).
- Lake Fryxell; Antarctica satellite image map. 2001. Lat 77°45' to 77°30'S, lat 164° to 163°E. Scale 1:25,000 (1 inch = about 2,100 feet). Sheet 29.5 by 37 inches.
- NEBRASKA. State of Nebraska. 1984. Lat 40° to 43°, long 95°20' to 104°5'. Scale 1:500,000 (1 inch = about 8 miles). Sheet 28.7 by 59.5 inches (in color).





OUTSIDE PUBLICATIONS

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ABBREVIATIONS USED

A-	Antarctic Geologic Map	MSB	Miscellaneous and Special Books
B	Bulletin	OC-	Oil and Gas Investigations Chart
C	Circular	OM-	Oil and Gas Investigations Map
C-	Coal Investigations Map	OF	Open-File Report
CAT	Catalog	OP	Outside Publication
CF	Coal Map	P	Professional Paper
CP-	Circum-Pacific Map Series	PB-,ADA	Report available only through the National Technical Information Service
DDS-	Digital Data Series	PDE	Preliminary Determination of Epicenters
DS	Data Series	SGM	Special Geologic Map
EV	Earthquakes and Volcanoes	SGMI	Geologic Map Index
FS	Fact Sheet	SIM	Scientific Investigations Map
GIP	General Information Product	SIR	Scientific Investigations Report
GN	General Interest Publication	SM	Special Map
GP-	Geophysical Investigations Map	STM	State Geologic Map
GQ-	Geologic Quadrangle Map	TM	Techniques and Methods
HA-	Hydrologic Investigations Atlas	TWI	Techniques of Water-Resources Investigations
HUM	Hydrologic Unit Map	W	Water-Supply Paper
I-	Miscellaneous or Geologic Investigations Series Map	WRI	Water-Resources Investigations Report
L-	Land Use and Land Cover Map	YR	Yearbook
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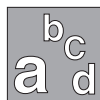
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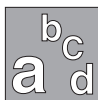
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Poland OP-466
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Appalachian Mountains *see* Appalachians

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tesian waters; confined aquifers; deep aquifers;
perched aquifers; recharge; shallow aquifers;
surficial aquifers; water resources.

SIR 2004-5077; C 1265; OF 02-0011;
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WRI 03-4231; FS 2004-3086; OP-1393
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California SIR 2004-5187; WRI 03-4059;
OF 03-0378; OP-169; OP-468; OP-757;
OP-1156; OP-1259; OP-1553; OP-1763;
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Florida SIR 2004-5073; WRI 03-4267;
OF 03-0223; OF 2004-1288; OF 2004-1314;
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WRI 03-4231; FS 0185-99; OP-1092
Mariana Islands WRI 03-4157
Massachusetts SIR 2004-5014; WRI 03-4309;
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OP-1353; OP-1532; OP-1759; OP-2299
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OP-1365; OP-1941; OP-2214
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OP-640; OP-1126; OP-1925
Pennsylvania WRI 03-4201; OF 2004-1006;
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South Carolina SIR 2004-5046; OP-330;
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Paleolithic.
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Archean Shield (North America) *see* Canadian Shield

archeology *see* archaeology

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Arctic region *see also* Arctic National Wildlife Refuge; Greenland.
CP-0048; OP-4; OP-60; OP-61; OP-223;
OP-421; OP-816; OP-1040

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ARD (acid rock drainage) *see* acid rock drainage

areal geology *see* bibliography; guidebook; maps

arendalite *see* epidote

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Ares Vallis OP-1073

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C 1272; OF 2004-1022; OP-239; OP-1243;
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Pampean Mountains OP-1104
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SIR 2004-5082; P 1684; WRI 03-4063; OF 03-0286; OF 03-0287; OF 2004-1062; OF 2004-1197; OF 2004-1331; I-2655; FS 0113-02; OP-244; OP-334; OP-571; OP-967; OP-970; OP-1032; OP-1361; OP-1378; OP-1470; OP-1502; OP-1884; OP-1927; OP-2027; OP-2074; OP-2183; OP-2245; OP-2353; OP-2354

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Coconino County Arizona I-2771; OP-1044; OP-1119; OP-1731

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Hopi Buttes Field OP-1069

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Yavapai County Arizona OP-1531

Arkansas *see also* Arkoma Basin; Mississippi Embayment; New Madrid region; Ouachita Belt; Ozark Mountains; Saint Peter Sandstone; Sparta Aquifer; Sparta Sand; White River.

SIR 2004-5064; WRI 02-4187; WRI 03-4109; WRI 03-4230; WRI 03-4232; WRI 03-4233; WRI 03-4284; WRI 03-4307; OP-96; OP-902; OP-903; OP-1187; OP-1215; OP-1854

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Benton County Arkansas WRI 01-4217;

WRI 02-4116; OF 2004-1357

Boone County Arkansas I-2847

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Lafayette County Arkansas WRI 03-4292

Madison County Arkansas WRI 02-4116

Mississippi County Arkansas OP-1749

Monroe County Arkansas WRI 02-4256

Newton County Arkansas I-2847

Poinsett County Arkansas OP-1660

Pulaski County Arkansas WRI 01-4045

Union County Arkansas FS 2004-3086

Washington County Arkansas WRI 01-4217;
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Arkansas River SIR 2004-5024; OP-768

Arkansas River valley WRI 03-4235

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OP-1758; OP-1868; OP-1881

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OP-961; OP-1001; OP-1644

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Maine FS 2004-3057

Massachusetts OP-1532

Midwest WRI 03-4228

Montana OP-612; OP-1879

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Arkansas WRI 03-4284

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Trilobitomorpha.

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Great Lakes OP-1298

Malacostraca

Florida OP-1772

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artifacts *see also* archaeological sites.

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Artiodactyla *see* Ruminantia

As *see* arsenic

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Hungary C 1272

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Asia *see also* Arabian Peninsula; Central Asia; Commonwealth of Independent States; Far East; Himalayas; Indian Peninsula; Kyrgyzstan; Middle East; Russian Federation; Turkmenia; Uzbekistan.

OP-294; OP-1228; OP-1412; OP-2096

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OP-952; OP-1641

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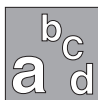
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Astoria Formation OP-1878

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OP-114; OP-278; OP-377; OP-661; OP-662

Atlanta Hill Deposit OF 2004-1205

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Delaware; Florida; Georgia; Maryland; South
Carolina; Virginia.

SIR 2004-5123; C 1264; WRI 03-4032;
OF 00-0439; OF 2004-1343; OP-116; OP-216;
OP-487; OP-492; OP-601; OP-615; OP-655;
OP-765; OP-894; OP-999; OP-1038; OP-1072;
OP-1078; OP-1163; OP-1224; OP-1270;
OP-1286; OP-1351; OP-1403; OP-1493;
OP-1602; OP-1674; OP-1763; OP-1869;
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OF 2004-1016; OF 2004-1283; OP-320; OP-339;
OP-841; OP-952; OP-1151; OP-1262; OP-1410;
OP-2002; OP-2024

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Atlantic-type margins *see* passive margins

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cipitation; general circulation models; green-
house effect; stratosphere; sulfur dioxide;
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OP-1075; OP-1147; OP-1444; OP-1794;
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SIR 2004-5077; OF 02-0011; OF 2004-1296;

FS 0077-03; FS 0117-03; FS 2004-3060;

FS 2004-3097; OP-129; OP-162; OP-1173;

OP-1174; OP-1266; OP-1983; OP-2332

Alaska OP-817

Appalachians C 1264

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WRI 03-4199; WRI 03-4254; FS 0036-01;

OP-1941

Canada OP-269

China OP-1641

Colorado SIR 2004-5005; FS 0043-03;

OP-1002; OP-1551

Connecticut

Europe OP-510

Florida SIR 2004-5073; WRI 03-4257;

FS 0113-03; OP-1142

Georgia SIR 2004-5073; OP-661

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Maine WRI 03-4310

Massachusetts

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Nevada SIR 2004-5155; WRI 03-4254;

FS 0036-01; OP-521; OP-1921; OP-1941

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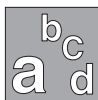
C *see* carbonC-12/C-13 *see* C-13/C-12

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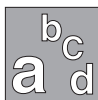
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Bernardino Mountains; San Jacinto Fault; San
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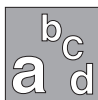
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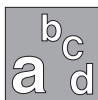
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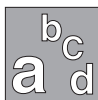
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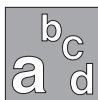
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OP-1479; OP-1487; OP-1492; OP-1538;

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OP-1835; OP-1866; OP-1970

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Canadian Shield OP-1169

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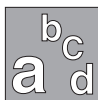
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Far East OP-239

Florida OP-1074

Georgia OP-251

Guatemala OP-247



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Deep Run Shale OP-632

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B 2216; OF 2004-1016

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OF 03-0400; OF 2004-1388

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 OP-2296; OP-2335; OP-2375

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Colorado OP-1680; OP-2122; OP-2188

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Maine OP-609

Maryland OP-9

Massachusetts OF 03-0221

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 OP-2192

Minnesota OP-306

Missouri OP-767

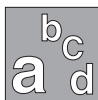
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Nevada WRI 03-4083; OP-1019; OP-1259;

OP-1496; OP-1801; OP-1886; OP-2084;

OP-2086; OP-2155; OP-2232

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Del Rio Clay OP-1050**delamination**

Alaska OP-1150
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Delmarva Peninsula; Indian River.
 WRI 03-4192; WRI 03-4193; OF 2004-1313;
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Delaware Basin OP-475**Delaware River** OF 03-0414**Delaware River basin** C 1227; WRI 03-4183**Delmarva Peninsula** C 1228; FS 0080-03;
OP-1637**deltaic sedimentation**

Nevada OP-2383

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Alaska OP-421
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Derby-Doern Dolomite WRI 03-4329

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Deschutes River WRI 03-4195; OP-1510**desert pavement**

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 Japan OP-1824
 Nevada OF 2004-1078
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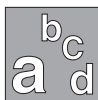
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diamicton

Antarctica OP-1548
 Washington OP-1895

diamond anvil cells *see* anvil cells



diapirs

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DS-0088; WRI 03-4002; OF 03-0395;
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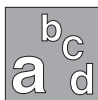
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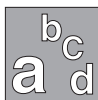
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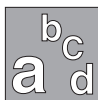
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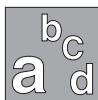
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He-4

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He-4/He-3

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He/He

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Hearde Plateau *see* Kerguelen Plateau

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 Indiana WRI 03-4149
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Hecate Chasma Quadrangle OF 2004-1100

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high-field-strength elements

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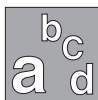
HIMU

Italy OP-1914

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Hispaniola *see* Dominican Republic; Haiti



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 ter resources; waterways.
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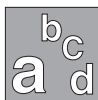
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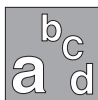
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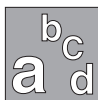
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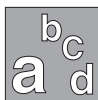
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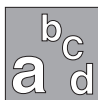
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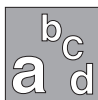
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 Hawaii OP-1155
- lava tubes**
 Pacific Ocean OP-657
 Washington OP-911
- Lavic Lake** OP-1063; OP-1523; OP-1524; OP-2335
- Lavinia Planitia** OF 2004-1289

Lawton Clay OP-1389**layered intrusions**

- Canadian Shield OP-1169
- Columbia Plateau OP-1169

LDEO *see* Lamont-Doherty Earth Observatory

lead *see also* U/Pb.

- OP-1488
- Alaska OP-1594
- Colorado OP-446; OP-1475; OP-2175; OP-2356
- Florida OP-1493
- Idaho OP-1059; OP-1060
- Kentucky OP-1430
- Midwest OP-1112
- Montana OP-1879
- Nevada OP-1870
- North Carolina OP-335
- Pb-206/Pb-204
 - California OF 03-0489; OP-1164; OP-2277
 - Colorado OP-1153
 - Hawaii OF 03-0493
 - Italy OP-1379; OP-1914
 - Mexico OP-395; OP-1164
 - Nevada OP-315; OP-2277
 - New England OF 2004-1342
 - Pacific Ocean OP-2267
 - South Carolina OP-479
 - Washington OP-1454
- Pb-207/Pb-204
 - Hawaii OF 03-0493
 - Spain OP-981
 - Washington OP-1454
- Pb-207/Pb-206
 - California OP-1974
 - Hawaii OP-2129
 - Italy OP-2167
 - Maine OP-581
 - New England OF 2004-1342; OP-2029
 - New Hampshire OP-581
 - South Carolina OP-479
- Pb-208/Pb-204
 - Hawaii OF 03-0493
 - Mexico OP-395
 - South Carolina OP-479
 - Washington OP-1454
- Pb-208/Pb-206
 - Hawaii OP-2129
 - South Carolina OP-479
- Pb-210
 - Atlantic Ocean OP-949
 - Barbados OP-2131
 - California OP-803
 - Florida OP-635; OP-2131
 - Louisiana OP-1499
 - Oregon OP-165
 - Trinidad and Tobago OP-2131
- Poland OP-557
- Tennessee OP-335; OP-1430
- Washington OP-1060
- West Virginia OP-1107; OP-1392

Lead Creek Deposit P 1678

lead glance *see* galena

lead ores *see also* lead-zinc deposits; mississippi valley-type deposits.

- OF 2004-1038
- Alaska OF 2004-1371; OF 2004-1372; OP-1675
- Arizona OP-970
- Colorado B 2213
- Idaho OP-1059; OP-1060
- Washington OP-1060

lead-lead *see* Pb/Pb

lead-zinc deposits *see also* mississippi valley-type deposits.

- Alaska P 1678; OP-296
- British Columbia OP-408; OP-409; OP-531; OP-772; OP-773; OP-796; OP-797
- Kansas WRI 03-4248
- Oklahoma SIR 2004-5043; WRI 03-4248

Leadville Colorado SIM-2820; OP-768; OP-823

Leadville Quadrangle**leaking underground storage tanks**

- California
- Pennsylvania WRI 03-4201
- South Carolina OP-478; OP-479

lebensspuren

- Maryland C 1264

Lebu Mine OP-1429

Lees Ferry Arizona P 1677; I-2771

left-lateral faults

- Alaska OP-1085
- California OP-1588
- Caribbean region OP-835
- Colorado OP-1105
- Middle East OP-2221
- Red Sea OP-2221

Leg 31 *see* DSDP Site 297

Leg 64 *see* DSDP Site 480

Leg 95 *see* DSDP Site 612; DSDP Site 613

Leg 119 *see* ODP Site 742

Leg 146 *see* ODP Site 893

Leg 150 *see* ODP Site 904

Leg 164 *see* ODP Site 995; ODP Site 997

Leg 167 *see* ODP Site 1015; ODP Site 1017; ODP Site 1019

Leg 169 *see* ODP Site 1035

Leg 178 *see* ODP Site 1095

Leg 188 *see* ODP Site 1165; ODP Site 1166; ODP Site 1167

Leg 190 *see* ODP Site 1177

Leg 195 *see* ODP Site 1200

Leg 196 *see* ODP Site 808

Leg 209 OP-426; OP-427; OP-428; OP-429; OP-430; OP-431; OP-432; OP-433; OP-434; OP-435; OP-436

legal geology *see* forensic geology

lehm *see* loess

Lemhi Group OP-303; OP-1978

Lemhi Range OP-1728

Leningrad Oblast Russian Federation *see* Saint Petersburg Russian Federation

Lenox Hills Formation OP-2309

Leo Formation OP-5

Leona Rhyolite OP-785; OP-1852

Leonardian *see* Bone Spring Limestone

Lepisosteus platyrhincus OP-2358

Lepomis marginatus OP-1617

Leptochirognathus quadratus OP-2237

Lesser Antilles *see also* Barbados; Trinidad and Tobago.

- Saint Croix OF 64-0158; OP-1825
- Saint Thomas OF 64-0158
- Soufriere OP-2048; OP-2049
- U. S. Virgin Islands OF 03-0379; OP-1841
- Virgin Islands OP-1862

Lesser Sunda Islands *see* Timor

leucogranite

Nevada OP-2155

Leukorhinion OP-1671

Lewis and Clark expedition OP-1049; OP-1544; OP-1814; OP-1889

Lewis and Clark Lineament OP-2011

Lewis, Meriwether C 1246; OP-1049; OP-1544; OP-1814; OP-1889

lexicons

- OP-2311
- Michigan OP-1453

Lg-waves

- Alaska OP-1781
- California OP-1053
- India OP-1194

Li *see* lithium

Libby Montana OP-565; OP-1784; OP-2376

Libia *see* Libya

libraries OF 03-0395; OF 2004-1002; OP-73; OP-708

Libya

- OP-456
- Sirte Basin OP-2221

licensing

- Idaho OF 03-0364
- Montana OF 03-0364

lidar methods

- SIR 2004-5005; OF 02-0011; FS 2004-3060; OP-1722
- Arizona OP-1442
- California OP-1524; OP-2063
- Florida OP-1078; OP-1166; OP-1167; OP-1237
- Gulf Coastal Plain OP-1826
- Gulf of Mexico OP-1826
- Hawaii OP-688
- Louisiana OP-742
- Maryland OF 2004-1302
- Nebraska OP-1612
- Oregon OP-1415
- Texas OP-327
- Virginia OF 2004-1320
- Washington SIR 2004-5058; OF 00-0439; OP-1189; OP-1209; OP-1415; OP-1462; OP-1863; OP-2063; OP-2127

life origin OP-1672

ligands

- OP-1746
- Florida OP-217; OP-951

lightning

- Florida OP-2330

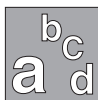
lightweight aggregate *see* aggregate

lignin**lignite**

- Argentina OF 2004-1022
- Great Plains OP-1387
- Gulf Coastal Plain OP-886
- India C 1272
- Kentucky OP-1430
- Louisiana OP-1092; OP-2315
- Poland OP-466
- Russian Federation C 1272; OF 2004-1283
- Tennessee OP-1430
- Texas OP-2315
- Turkey C 1272

limestone *see also* dolomitization.

- OP-182; OP-1211
- Arizona OP-1813; OP-2353
- Florida OP-1214; OP-1848; OP-2288
- Michigan OP-1710



Pennsylvania OP-181; OP-1438
Virginia OP-826; OP-2216
West Virginia OP-827; OP-2216

limnology

Massachusetts OP-731
Nevada OP-726
New Hampshire OP-731
Oregon OP-727

Lincoln Formation OP-124**lineaments** *see also* fault zones.

OF 2004-1289; I-2794
Alaska OP-1892
Australia OP-859
California OP-1014; OP-1047; OP-2084;
OP-2323
Florida OP-486
Illinois OP-630
India OP-859
Indiana OP-364
Kentucky OP-364
Mississippi Valley OP-36
Missouri OP-1990
Nevada OP-1244; OP-2084
Oregon OP-1829
Tennessee OP-1990
Washington OF 03-0455; OP-1829

lineation *see also* boudinage; folds; foliation.

Alaska P 1678
Montana OP-627

liners *see* disposal barriers

LIP (large igneous provinces) *see* large igneous provinces

Lipari Islands *see* Stromboli; Vulcano

liptinite *see* exinite

liquefaction *see also* liquefaction potential.

OP-595; OP-901; OP-1750; OP-1836
Arkansas OP-1749
California OF 03-0485; OF 2004-1269
India OP-2263
Italy OP-425
Massachusetts OP-1196
Puerto Rico OP-2262
Turkey OP-1503
Washington OP-829; OP-1007; OP-1203;
OP-1464; OP-2127; OP-2217; OP-2254;
OP-2255

liquefaction potential

Arkansas
California OP-855
Tennessee

liquid inclusions *see* fluid inclusions

Lisburne Group OF 2004-1372**lithium**

Arizona OP-2354
Colorado OP-103

lithogeochemistry *see also* metasomatism;
weathering.

Alaska OP-300

lithologic traps *see* stratigraphic traps

lithosomes

Delaware OP-1637
Maryland OP-1637
New Mexico OF 2004-1093

lithosphere *see* continental lithosphere; oceanic lithosphere

lithostatic pressure

Atlantic Ocean OP-1023
Western Australia OP-225

lithostratigraphy

SIM-2816; P 1411-A; OF 00-0439;
OF 2004-1100; OF 2004-1283; OF 2004-1289;
I-2753; I-2792; OP-130; OP-131; OP-135;
OP-136; OP-149; OP-234; OP-349; OP-352;
OP-594; OP-659; OP-682; OP-776; OP-807;
OP-1842; OP-2107
Alabama OF 2004-1016; OF 2004-1273
Alaska P 1678; OF 2004-1283; MF-2413;
I-2778; OP-116; OP-157; OP-158; OP-281;
OP-383; OP-1440; OP-1577; OP-2083
Antarctica OP-838
Appalachians C 1264
Arctic Ocean OP-684
Arctic region CP-0048
Arizona P 1684; OF 2004-1062; MF-2396;
MF-2410; MF-2418; MF-2427; I-2655;
FS 0113-02; OP-600
Arkansas I-2847; OP-1854
Atlantic Coastal Plain OP-894
Australia OP-232
California SIM-2851; P 1550-E; P 1690;
OF 03-0418; OF 03-0488; OF 03-0501;
OF 03-0502; OF 2004-1361; OP-575;
OP-600; OP-812; OP-964; OP-966; OP-1168;
OP-1509; OP-2086; OP-2244
Canada OF 2004-1283
China OF 2004-1283; OP-1385
Colorado GIP 0002; DDS-0069-G; P 1699;
B 2213; OF 02-0011; OF 2004-1194;
MF-2415; FS 2004-3050; OP-40; OP-203;
OP-721; OP-915
Connecticut OF 03-0487-A; OF 03-0487-B
District of Columbia OF 2004-1343
Georgia WRI 03-4032; I-2602
Gulf Coastal Plain OP-894
Hawaii I-2759
Idaho OF 03-0483; MF-2426; OP-303; OP-314;
OP-1299; OP-1495; OP-1708
India B 2208-C; B 2208-D
Japan OP-34
Kentucky OP-2067
Louisiana WRI 02-4053; OP-220; OP-606
Maine OP-471; OP-609; OP-610; OP-702;
OP-2238
Maryland C 1264; OP-121; OP-2271
Mexico OF 2004-1016; OP-77; OP-537;
OP-2271
Michigan OP-263; OP-264
Missouri WRI 03-4329; I-2775; I-2801
Montana MF-2426; OP-515; OP-626; OP-1495
Nevada SIR 2004-5205; OF 2004-1078;
MF-2422; OP-689; OP-1089; OP-1257;
OP-1905; OP-2086
New Jersey OP-1294
New Mexico OF 2004-1093; MF-2419; OP-832
New York WRI 02-4284; OP-631
North Carolina OF 2004-1301
Ohio OP-104; OP-2067
Oklahoma OP-640
Oregon OF 00-0439; OF 03-0067; I-2683;
OP-604; OP-1717; OP-1878; OP-1988
Pacific region CP-0048
Pakistan B 2208-B; B 2208-C
Pennsylvania C 1264; OP-1294
Puerto Rico WRI 03-4317
Russian Federation OP-5; OP-703
South Australia OP-184
South Carolina OF 2004-1013; OP-698;
OP-1351

South Dakota OP-243

Tennessee OP-325

Texas SIR 2004-5226; FS 2004-3114; OP-41;
OP-220; OP-448

Tunisia OP-825

United Arab Emirates OP-5

United States OP-232

Utah DDS-0069-G; I-2655; OP-357; OP-895

Virginia C 1264; OF 03-0461; OF 2004-1016;
OP-622; OP-1968; OP-2271

Washington SIM-2827; OF 00-0439; OP-88;
OP-829; OP-879; OP-939; OP-1300;
OP-1723

West Virginia C 1264; OF 03-0396; OP-827

Western Australia OP-184

Western Interior OP-134

Wisconsin OP-124

Wyoming SIM-2835; OP-5; OP-243; OP-515;
OP-520; OP-555; OP-721

lithotypes

OF 2004-1283

China OF 2004-1283

Little Belt Mountains OP-2011; OP-2225;
OP-2285; OP-2286

Little Boulder Creek Stock OP-2349

Little Ice Age *see* Neoglacial

littoral cells

Oregon OF 00-0439; OP-1443
Pacific Ocean OF 02-0281
Washington OF 00-0439; OP-1312

littoral drift

Michigan OP-1697
New York OP-765

littoral erosion

OP-840
Atlantic Coastal Plain OP-2326
California OP-2063
Georgia OP-1239; OP-1448
Gulf Coastal Plain OP-1826; OP-2326
Gulf of Mexico OP-1826
Hawaii OP-266
Louisiana OP-741; OP-742; OP-1931
Maryland OP-1157; OP-1480
Massachusetts OP-1490
Michigan OP-1697
New York OP-765; OP-959
North Carolina OP-741; OP-1286
Oregon OP-1443
South Carolina OP-1239; OP-1262; OP-1370;
OP-1448; OP-1449; OP-2363
Texas OP-327
Washington OP-2063

Lituolacea *see* Ammobaculites

Liu, Hsi-Ping OP-267

Livermore California OP-1855

Liwa Aquifer OP-815

loam

South Dakota OP-706

location maps *see* site location maps

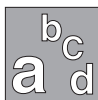
loellingite *see* lollingite

loess *see also* eolian features.

OP-652
Alaska OP-598; OP-1845; OP-2046
Colorado OP-955
Nebraska OP-70
Yukon Territory OP-598

Loess Plateau OP-503

Lokken Deposit OP-319



Lokken Ophiolite OP-319**lollingite**

Pacific Ocean OP-2246

Loma Prieta earthquake 1989California P 1550-E; OP-506; OP-940;
OP-1062; OP-1843; OP-2323**Lone Pine Formation** OP-812**Long Beach California** OF 2004-1053; OP-81;
OP-964**Long Beach earthquake 1933** OP-1595**Long Island SIR** 2004-5038; WRI 02-4284;
OF 03-0439; OP-109; OP-150; OP-765; OP-959**Long Island Sound** OF 03-0241; OP-71;
OP-111; OP-459; OP-460; OP-564; OP-687;
OP-788; OP-842; OP-866; OP-938; OP-949;
OP-1966; OP-2269**Long Valley** OP-1347**Long Valley Caldera** DDS-0081; P 1692;
OF 2004-1096; OP-271; OP-345; OP-367;
OP-392; OP-692; OP-1012; OP-1290;
OP-1346; OP-1572; OP-1573; OP-2031**Longaevipollis** OP-149**Longfellow Mine** OP-446longitudinal wave *see* P-waves**Longmen Mountains** OP-1385longshore drift *see* littoral drift**Lookout Mountain Deposit** OP-2138**Los Alamos National Laboratory**
OF 2004-1093**Los Angeles Basin** P 1690; OP-1055; OP-1149;
OP-1406; OP-2091; OP-2121; OP-2344**Los Angeles California** *see also* Northridge Cali-
fornia.OP-85; OP-514; OP-964; OP-1149; OP-1313;
OP-1363; OP-2121; OP-2344**Los Angeles earthquake 1994** *see* Northridge
earthquake 1994**Los Angeles Region Seismic Experiment**California OP-530; OP-995; OP-1711;
OP-1851; OP-2055; OP-2091; OP-2135;
OP-2239**Los Cuervos Formation** OP-1580**Louark Group** OP-894**Louisiana** *see also* Chicot Aquifer; Mississippi
River; Sabine Uplift; Sparta Aquifer; Sparta
Sand; Tuscaloosa Formation; Wilcox Group;
Woodbine Formation.SIR 2004-5065; DDS-0079; WRI 02-4089;
WRI 03-4038; WRI 03-4050; WRI 03-4185;
OF 03-0386; OF 03-0402; OF 2004-1043;
FS 0010-03; FS 0021-02; OP-242; OP-701;
OP-1092; OP-1528; OP-1673; OP-1703;
OP-2107; OP-2345

Atchafalaya River P 1672; C 1270; OP-1807

Avoyelles Parish Louisiana OP-607

Barataria Bay FS 0011-03

Baton Rouge Louisiana WRI 03-4020;
WRI 03-4021Caddo Parish Louisiana WRI 01-4063;
WRI 03-4135East Baton Rouge Parish Louisiana
WRI 03-4212; OP-607

Isles Dernieres OP-741; OP-1931

Lafourche Parish Louisiana OP-742; OP-1931

Lake Pontchartrain C 1232; OF 03-0497;
FS 0011-03; FS 0185-99; OP-1499

Livingston Parish Louisiana OP-607

Mississippi Delta OP-593

New Orleans Louisiana OP-492; OP-993

Ouachita Parish Louisiana OF 2004-1239

Plaquemines Parish Louisiana OP-742

Pointe Coupee Parish Louisiana OP-607

Saint Landry Parish Louisiana OP-607

Saint Tammany Parish Louisiana OP-607

Terrebonne Parish Louisiana OP-593; OP-742

West Baton Rouge Parish Louisiana

WRI 03-4020; WRI 03-4021; OP-607

Louisville Kentucky OP-2226low stands *see* lowstands**low-angle faults**

California OP-1744

Nevada OP-2362

low-grade metamorphism

Japan OP-1824

Lower Cambrian *see* Chilhowee Group; Rome
Formation; Shady DolomiteLower Cretaceous *see* Albion; Edwards Forma-
tion; Georgetown Formation; Mowry Shale;
Pebble Shale**lower crust** *see also* crust-mantle boundary.

Alaska OP-1329

Hawaii OP-2120

India OP-1996

Nevada OP-315

Lower Devonian *see* Helderberg Group; Oriskany
Sandstonelower Eocene *see* Aquia Formation; Wilcox
Group**lower mantle** OP-2024; OP-2276**Lower Mississippi Valley** OP-853Lower Mississippian *see* Cuyahoga Formation;
Fort Payne Formation; Kinderhookian; Osagianlower Neogene *see* MioceneLower Ordovician *see* Beekmantown Group;
Ibexian**lower Paleocene** *see also* K-T boundary;
Puercan.

South Carolina OP-1351

lower Paleozoic *see* Chopawamsic Formation;
Glenarm SeriesLower Peninsula, Michigan *see* Michigan Lower
PeninsulaLower Pennsylvanian *see* Morrowan; Pocahontas
FormationLower Permian *see* Asselian; Barakar Stage;
Leonardian; Opeche Shale; Sakmarian;
Wolfcampianlower Pleistocene *see* Jaramillo Subchronlower Precambrian *see* ArcheanLower Silurian *see* Tuscarora Formation**lowstands**

Florida OP-1848

Loxahatchee National Wildlife Refuge

OP-1067; OP-1618; OP-2156

Loxoconcha OP-1268**Loyalhanna Limestone Member** C 1264**Lublin Upland** OP-465**Lucky Dog Mine** OP-979**Ludlowville Formation** OP-632luminance *see* brightness**lunar highlands** OP-163**lunar meteorites** OP-163**lunar soils** OF 2004-1289lunar variations *see* monthly variationsLungmen Mountains *see* Longmen MountainsLUST *see* leaking underground storage tanksLuzon *see* Mount Pinatubo**Lycopsida** OP-1411**Lynchburg Formation** OP-852**Lyon Mountain Gneiss** OP-852**M**M-discontinuity *see* Mohorovicic discontinuity**Maacama Fault** OF 03-0502; OP-288; OP-1779**maars**

Alaska OP-597

Maastrichtian *see* Maestrichtianmacaluba *see* mud volcanoes**Macedonia** OP-1932**macerals** *see also* exinite; inertinite; vitrinite.

China OF 2004-1283

Russian Federation OF 2004-1283

Texas OP-41

Venezuela OF 2004-1283

Victoria Australia OF 2004-1283

machine-readable data *see* digital data**Mackenzie Delta** OP-920; OP-2351**Madagascar** OP-177Madhya Pradesh India *see* Sohagpur coal field**Madison Aquifer** OP-1805**Madison Group** OP-1948**Madison Range** OP-437; OP-626**Maestrichtian**

OP-149

Alaska OP-1302

Colorado OP-362

mafic magmas

California OP-1176

Oregon OP-1670

Washington OP-1670

Magallanes Basin OP-1429**magma chambers**

OP-441

Antarctica OP-498

California OP-692; OP-2062

Colorado OP-991; OP-2348

Hawaii OP-2129; OP-2366

Japan OP-2243

New Mexico OP-1261; OP-1624

magma contamination

Antarctica OP-498

California OP-1308

Sweden OP-25

magma reservoir *see* magma chambers**magma transport**

OP-1527

California OP-2062

Colorado OP-1263

Oregon OP-246

Washington OP-128

magmas *see also* crystal fractionation; fractional
crystallization; magma chambers; magma con-
tamination; magmatic differentiation.

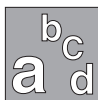
OP-172; OP-542; OP-1249; OP-1488; OP-1740

Alaska OP-308; OP-365; OP-369; OP-523;
OP-1303

Andes OP-1264

Antarctica OP-1021

Appalachians OP-851



Basin and Range Province OP-984
 California P 1692; OP-850; OP-1012; OP-1251
 Canada OP-1891
 Canadian Shield OP-984
 Caribbean region OP-2049
 Chile OP-2051
 Hawaii OP-403; OP-847; OP-1135; OP-2059
 Idaho OP-1891
 Italy OP-147; OP-403; OP-1379; OP-1704
 Japan OP-393
 Lesser Antilles OP-2049
 mafic magmas
 California OP-1176
 Oregon OP-1670
 Washington OP-1670
 Mexico OP-850; OP-2270
 Montana OP-1891
 Nevada OP-1519; OP-1768; OP-1885;
 OP-2058; OP-2155
 New Zealand OP-39; OP-1320
 Oregon OP-1601; OP-1829; OP-2058
 Pacific Ocean OP-657
 Philippine Islands OP-199
 Victoria Australia OP-1320
 Washington OP-1558; OP-1601; OP-1662;
 OP-1829; OP-2137
 Western Australia OP-857

magmatic differentiation
 Alaska OP-300
 Idaho OP-1979

magmatism *see also* phreatomagmatism.
 OF 2004-1100; OP-802; OP-862; OP-1010;
 OP-1183; OP-1488; OP-1527; OP-2220
 Alaska OF 03-0435; OP-224; OP-1150;
 OP-1645; OP-1646
 Alberta OP-2286
 Appalachians OP-851
 Arizona OP-970
 Australia OP-859
 Basin and Range Province OP-1559
 California OF 2004-1096; OP-837; OP-1034;
 OP-1344
 Canada OP-379; OP-1150
 Chile OP-290; OP-2051
 China OP-87; OP-937
 Colombia OP-1645; OP-1646
 Colorado OP-2348
 Europe OP-1932
 Great Basin OP-1559
 Greece OP-837
 Hawaii OP-786; OP-847; OP-1645; OP-1646;
 OP-1654
 Idaho OP-237; OP-2225
 India OP-859
 Italy OP-837; OP-1934
 Japan OP-469; OP-837; OP-1645; OP-1646
 Malaysia OP-1933
 Mexico OP-1530
 Midwest OP-1112
 Missouri OP-1990
 Mongolia OP-463
 Montana OP-1148; OP-2225; OP-2286
 Nevada OP-1122; OP-1496; OP-1664;
 OP-2151; OP-2278
 New York OP-852
 New Zealand OP-837; OP-1320
 Oregon OP-246; OP-1670; OP-2320
 Russian Federation OP-703
 Tennessee OP-1990
 Turkey OP-837

United States OP-379
 Utah OP-237; OP-2151
 Victoria Australia OP-1320
 Virginia C 1264; OP-852
 Washington OP-1670; OP-2137; OP-2320
 West Virginia C 1264

magnesian spar *see* dolomite

magnesiocopiapite
 California OP-2073

magnesioriebeckite
 Montana OP-565

magnesiowustite
 Africa OP-936

magnesium
 OP-146; OP-182; OP-1268; OP-1354; OP-1743
 Atlantic Ocean OP-1269
 California OP-1899
 Florida OP-1583
 Nevada OP-1899; OP-1939; OP-2369
 Oman OP-1071
 Russian Federation OP-488
 Virginia OP-1556

magnetic anomalies
 OP-1321; OP-1322; OP-1386; OP-1642;
 OP-2123
 Alaska OF 2004-1202; OP-2065
 Antarctica OP-55
 Atlantic Ocean OF 2004-1258
 California P 1550-E; OF 03-0012; OF 03-0485;
 OF 2004-1096; OP-345; OP-482; OP-651;
 OP-850; OP-972; OP-1164; OP-1655;
 OP-1657
 Canada OP-1048
 China OP-259
 Kazakhstan OP-259
 Malaysia OP-1933
 Mexico OP-850; OP-1164
 Missouri
 Montana SIM-2829; OP-626
 Nevada OF 2004-1345; OP-1655
 New England OF 2004-1258
 New Mexico OF 2004-1093
 Oregon OP-2057
 United States OP-1048
 Virginia OF 2004-1016
 Washington OF 03-0455; OF 2004-1204;
 OP-987; OP-2126

magnetic declination
 California P 1690
 Wyoming OP-1445

magnetic domains
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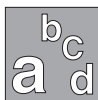
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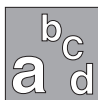
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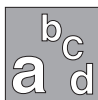
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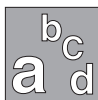
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Wyoming OP-2014

Oahu *see also* Pearl Harbor; Waianae.
C 1239; OP-588

Ob River OP-322

oblique-slip faults

California OP-1806

ocean basins

OP-1474
Canada OP-1151

ocean circulation *see also* bottom currents;

ocean currents.

OP-906
California OF 2004-1019
Chile OP-2061
Florida WRI 03-4267; OF 2004-1265
Georgia OF 2004-1196
Hawaii OP-724
Netherlands OF 00-0439
Nevada OP-1628
Washington OF 00-0404

ocean crust *see* oceanic crust

ocean currents

OP-840
Arctic Ocean OP-413
California OF 2004-1019
Hawaii OF 03-0482; OF 2004-1287;
OF 2004-1353
New York OP-339
Washington OF 00-0439

Ocean Drilling Program *see also* Leg 119; Leg
131; Leg 132; Leg 146; Leg 150; Leg 164; Leg
167; Leg 169; Leg 178; Leg 188; Leg 190; Leg
195; Leg 196; ODP Site 808.

B 2216; OF 2004-1016; OP-426; OP-427;
OP-428; OP-429; OP-430; OP-431; OP-432;
OP-433; OP-434; OP-435; OP-436; OP-963

ocean floors *see also* abyssal plains; bathymetric
maps; bottom features; continental margin; con-
tinental rise; continental slope; Deep Sea Drill-
ing Project; hydrothermal vents; mid-ocean
ridges; sea-floor spreading; seamounts; subma-
rine canyons; submarine fans; submarine volca-
noes; trenches.

OF 2004-1226; OP-517

Arctic region CP-0048

Atlantic Ocean OP-111; OP-427; OP-428;
OP-429; OP-430; OP-431; OP-432; OP-433;
OP-434; OP-435; OP-436; OP-459; OP-687;
OP-938

British Columbia OP-796; OP-2022

California OF 2004-1081; OP-48; OP-613;
OP-2004

Caribbean region OP-835

Connecticut OF 2004-1003

Florida OP-1436

Gulf of Mexico OF 03-0474

Hawaii OF 2004-1353; OF 2004-1378

Japan OP-206

Massachusetts

Nevada B 2209

Norway OP-319

Oregon OF 00-0439

Pacific region CP-0048

Sweden OF 2004-1016

Washington OF 00-0439

ocean lithosphere *see* oceanic lithosphere

ocean ridges *see* mid-ocean ridges

ocean waves *see also* tsunamis.

P 1693; OP-840

Atlantic Coastal Plain OP-2326

Atlantic Ocean OP-788

Florida OF 2004-1044; OF 2004-1217

Gulf Coastal Plain OP-2326

Hawaii OP-724

Oregon P 1693

Pacific Ocean OF 00-0439

Washington OF 00-0404; OF 00-0439

ocean-floor spreading *see* sea-floor spreading

ocean-island basalts

Appalachians OP-851

Oceania *see* Melanesia; Micronesia; Polynesia

oceanic crust

OP-1615; OP-2257; OP-2321

Alaska OP-563; OP-2090

California P 1550-E; OP-1164; OP-1575

Caribbean Sea OP-2228

China OP-1046

Hawaii OP-311

Mariana Islands OP-963

Mexico OP-1164

Micronesia OP-963

Pacific Ocean OP-657

Washington OP-1976

oceanic lithosphere OP-1818

oceanic trench *see* trenches

oceanography *see* continental margin; continental
shelf; continental slope; estuaries; marine geol-
ogy; nodules; ocean basins; ocean circulation;

ocean floors; ocean waves; reefs; sea ice; sea
water; sedimentation; sediments

Oceanside earthquake 1986 OP-1595; OP-2047

Oceanside Quadrangle OP-964; OP-1595

octahedral iron ore *see* magnetite

Odessa Washington OP-1545

Odonata

Alabama OP-1833

California OP-962

ODP *see* Ocean Drilling Program

ODP Site 742 OP-2233

ODP Site 808 OP-1081

ODP Site 893 OP-804

ODP Site 904 OF 2004-1016

ODP Site 995 OP-654

ODP Site 997 OP-654

ODP Site 1015 OP-804

ODP Site 1017 OP-804

ODP Site 1019 OP-189

ODP Site 1035 OP-1212

ODP Site 1095 OP-42

ODP Site 1165 OP-159; OP-1165; OP-1702

ODP Site 1166 OP-42; OP-159; OP-838;
OP-1165

ODP Site 1167 OP-2233

ODP Site 1177 OP-1081

ODP Site 1200 OP-1838

ODP Site 1268 OP-435; OP-436

ODP Site 1269 OP-432; OP-436

ODP Site 1270 OP-433; OP-436

ODP Site 1271 OP-429; OP-436

ODP Site 1272 OP-427; OP-436

ODP Site 1273 OP-430; OP-436

ODP Site 1274 OP-431; OP-436

ODP Site 1275 OP-434; OP-436

Oella Formation OP-9

Ogallala Aquifer OF 03-0296

Ogallala Formation OP-1109; OP-2187;
OP-2188

Ohio *see also* Appalachian Basin; Cuyahoga For-
mation; Lake Erie; Ohio River basin; Ohio
Shale; Pottsville Group.

C 1229; WRI 03-4164; WRI 03-4216;
WRI 03-4333; OF 03-0194; OP-1225; OP-1426;
OP-1514; OP-2313

Cleveland Ohio OP-820

Lorain County Ohio WRI 03-4215

Ohio River WRI 03-4336

Ohio River basin OF 70-0010

Ohio River valley OP-1107; OP-1392

Ohio Shale OP-104

Ohio Valley *see* Ohio River valley

OIB *see* ocean-island basalts

oil and gas *see* petroleum

oil and gas fields *see also* natural gas; oil wells;
petroleum; stratigraphic traps; Urengoy Field.

FS 2004-3025

Illinois OP-944

Montana WRI 03-4214

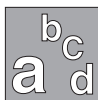
Utah OP-716

Virginia OF 2004-1283

oil seeps

Alaska MF-2428

California OP-1649



oil shale

Brazil OF 2004-1283

oil spills *see also* Exxon Valdez oil spill.
Minnesota OP-1235; OP-1512; OP-1513
Oklahoma OP-1906

oil wells

DDS-0069-C
Alaska OF 03-0407
Colorado OP-170; OP-1306
New Mexico OP-1306
Oklahoma B 2172-E
Utah OP-170

Oise France OP-1418**Oise River valley** OP-1418**Okhotsk Sea** OP-189

Oklahoma *see also* Anadarko Basin; Arbuckle Group; Boone Formation; Canadian River; High Plains Aquifer; Hunton Group; Morrow Formation; Simpson Group.
SIR 2004-5039; B 2209; FS 2004-3022;
OP-1211

Arbuckle Mountains OP-1671
Beckham County Oklahoma OF 03-0362
Cleveland County Oklahoma FS 0040-03;
OP-44; OP-191; OP-1126; OP-1127;
OP-1192; OP-2381

Ellis County Oklahoma OP-640
Oklahoma County Oklahoma
Osage County Oklahoma WRI 03-4235;
OP-1906

Ottawa County Oklahoma
Wichita Mountains OP-1671

Oklo OP-1860**Old Church Formation** OP-894**Old Faithful Geyser** OP-723Old Stone Age *see* Paleolithic**Oligocene**

Brule Formation OP-1109
California OP-1588; OP-1792
Colorado OP-1494; OP-1810; OP-2368
Fish Canyon Tuff OP-991; OP-1263; OP-1681;
OP-1682; OP-1952
Florissant Lake Beds OP-915
Nevada OP-1519; OP-2155
New Mexico OF 2004-1093; OP-1261
Virginia OF 2004-1016; OP-1968
Washington OP-1863

oligoclase

Georgia OP-904

Oliverian Plutonic Suite OP-581**olivine**

OP-172; OP-287
Italy OP-1026
Montana OP-2234

olivine tholeiite

California OP-1251

Olympia Beds OP-1723

Olympia Washington OP-879; OP-1048;
OP-1368; OP-1464

Olympic Mountains OP-1462; OP-1761;
OP-1829

Olympic Peninsula OP-1976**Olympus Mons** OP-672**Oman** OP-102; OP-924; OP-1071; OP-1627**Onchorhynchus nerka** OP-1439; OP-1923**Onondaga Limestone** OP-631**Onshu Island** OP-513

Ontario *see also* Detroit River; Lake Saint Clair;
Saint Clair River.

OP-919
Elliot Lake Ontario OP-1860
Lake Nipissing OP-1699

ooze

Florida OP-1691

opal *see also* opal-A.

Nevada OP-1871; OP-2329

opal-A

Yugoslavia OP-628

opaline *see* opal**Opeche Shale** OP-243**open-pit mining**

California OP-2073
Colorado OP-677
Nevada OP-1999

ophiolite

Alaska OP-1827; OP-1828
Arabian Peninsula OP-814; OP-1627
California OP-447; OP-544
Mexico OP-447; OP-1827
Middle East OP-1627
Norway OP-319
Oregon OP-447
Wisconsin OP-2095

ophiolite complexes

OP-785
California OP-447
Mexico OP-447
Oregon OP-447

optical mineralogy

Washington OP-1431

optical radar methods *see* lidar methods**optically stimulated luminescence**

California OP-1168
Israel OP-1741
South Australia OP-184
South Dakota OP-1992
Western Australia OP-184

Opuntia OP-2268**Oquirrh Mountains** OP-190orbit *see* orbits**orbital forcing**

OP-66
Appalachians C 1264
South America OP-341

orbits OP-507**Ordos Basin** OF 2004-1283; OP-1046**Ordovician**

Alaska OP-2138
Ammonoosuc Volcanics OP-581
Argentina OP-1104
Beekmantown Group C 1264; OP-826
Colorado OP-1413
Connecticut OP-878
Ibexian
Appalachians OP-1671
Arctic region OP-1671
Arkansas OP-1325
Juniata Formation C 1264
Maine OP-609
Maryland OP-9; OP-1072
Massachusetts OP-2299
Nevada OP-1885
New Jersey OP-1294
New York OP-2008
North Carolina OP-1065

Norway OP-319

Partridge Formation OP-581
Pennsylvania OP-1294; OP-2008
Saint Peter Sandstone OP-1325
Simpson Group B 2172-E
Tennessee OP-1065
Utica Shale OP-574
Valmy Formation OP-1768
Vermont OP-704; OP-705; OP-2237
Vinini Formation OP-1325
Whiterockian, Arkansas OP-1325
Wisconsin OP-277

ore exploration *see* mineral assessmentore of sedimentation *see* placers**ore-forming fluids**

OP-862
Alaska OP-296; OP-308
Argentina OP-1243
Arkansas OP-1393
British Columbia OP-408; OP-773
California OP-2141
Canada OP-979; OP-1891
Chile OP-1243
Idaho OP-1891
Indonesia OP-2261
Iran OP-1219
Malaysia OP-1933
Missouri OP-1393
Montana OP-1148; OP-1891
Nevada OP-1170; OP-1171; OP-1664;
OP-2141; OP-2278
Spain OP-867; OP-2141
Utah OP-190
Western Australia OP-225

Oregon *see also* Cascade Range; Coast Ranges;
Columbia Plateau; Columbia River; Columbia
River Basalt Group; Deschutes River; Galice
Formation; Great Basin; Josephine Ophiolite;
Klamath Mountains.

SIR 2004-5061; P 1693; WRI 03-4098;
WRI 03-4271; WRI 03-4327; OF 00-0439;
OF 03-0067; OF 2004-1014; OF 2004-1038;
OF 2004-1052; I-2683; FS 2004-3073; OP-93;
OP-94; OP-108; OP-164; OP-165; OP-166;
OP-401; OP-571; OP-604; OP-727; OP-785;
OP-1225; OP-1333; OP-1415; OP-1785;
OP-1804; OP-1846; OP-1962; OP-2185;
OP-2320

Clackamas County Oregon WRI 03-4145;
OP-1661

Clatsop County Oregon OP-1677; OP-1878

Columbia County Oregon OP-1677

Deschutes County Oregon OP-246; OP-1210;
OP-1271; OP-1316

Harney County Oregon OP-156

Hood River County Oregon OP-1661

Klamath County Oregon OP-2012

Klamath Falls Oregon OP-1678

Lane County Oregon OP-246; OP-1271;
OP-1316

Mount Hood OF 2004-1298; OP-1210;
OP-1248; OP-1661; OP-1988; OP-2110

Newport Oregon OP-1443

Portland Oregon OP-76; OP-1048

Steens Mountain OP-1552; OP-2058

Wallowa Mountains OP-1829

Willamette Valley OP-1048; OP-1432

ores, polymetallic *see* polymetallic ores

organic acids *see* amino acids; carboxylic acids;
fulvic acids



organic carbon *see also* total organic carbon.

SIR 2004-5003; OF 2004-1227; OP-160;
OP-527
Alaska OF 03-0427; OP-1675
Arkansas
Atlantic Ocean OP-2269
California SIR 2004-5117; WRI 03-4127;
OF 03-0366; OP-68; OP-1267; OP-1903;
OP-2006
Caribbean Sea OP-1713
Colorado OP-1497; OP-2274
Florida OP-635; OP-636; OP-1500; OP-1583;
OP-1634
Gulf Coastal Plain WRI 03-4182
Idaho WRI 03-4272
Louisiana WRI 03-4050
Massachusetts OP-450
Mexico OP-1903
Michigan OP-1114
Minnesota OP-1114
Mississippi OP-512
Nebraska FS 0072-03
Nevada OP-1676
Texas SIR 2004-5053; OP-229
Utah OP-497
Vermont OP-779
Washington OF 03-0344
Wisconsin OP-1331

organic compounds *see also* alachlor; alcohols;
diazinon; esters; ethers; halogenated hydrocar-
bons; hydrocarbons; isoprenoids; kerogen;
lignin; methylmercury; metolachlor; organic ac-
ids; peptides; phenols; pigments; proteins;
sapropel; semivolatile organic compounds; ste-
roids; total organic carbon; triazines; volatile or-
ganic compounds.

SIR 2004-5005; WRI 03-4203; OF 03-0364;
OF 2004-1283; OP-160; OP-183; OP-527;
OP-550; OP-671; OP-799; OP-881; OP-1005;
OP-1051; OP-1285; OP-1358; OP-1868;
OP-2169
Alaska P 1678; OF 03-0427
Basin and Range Province OF 02-0011
California OF 2004-1080; OP-787; OP-2115;
OP-2159; OP-2361; OP-2375
Canada OF 2004-1283
Caribbean Sea OP-1713
Colorado WRI 03-4275; OF 02-0011;
OF 2004-1388; FS 2004-3009; OP-768;
OP-1815
Delaware OP-1637
East Pacific Ocean Islands OP-20
Florida SIR 2004-5028; WRI 03-4249;
FS 0008-03; OP-1783; OP-2248
Georgia WRI 03-4032
Great Basin OF 02-0011
Great Lakes OP-1298
Gulf of Mexico OP-2133
Hawaii C 1239
Idaho OF 2004-1004; OP-813; OP-1128;
OP-1405
Iowa OF 2004-1048
Israel OP-2113
Jordan OP-2113
Louisiana WRI 02-4089; OP-1807
Maryland OP-1637
Massachusetts OP-864
Mexico OP-2270
Michigan OP-1114
Minnesota OP-1114
Nevada OP-1676; OP-2369

New Hampshire OP-2350
New Mexico OF 02-0011
North Carolina OF 2004-1073
Polynesia OP-20
Texas OP-864
Washington C 1237
Wyoming OF 2004-1360; FS 0068-02;
FS 0069-02; FS 0070-02

organic mound *see* bioherms

organo-metallics *see also* methylmercury;
tributyltin.
California OP-637

organochlorine compounds *see* chlorinated hydro-
carbons

organochlorine pesticides *see also* chlordane;
DDT; dieldrin; toxaphene.
C 1230; WRI 03-4293; OP-811
California
Louisiana
Texas WRI 03-4269

Orgueil Meteorite OP-120

Orinoco River OP-1030

Oriskany Sandstone C 1264

Orizaba, Pico de *see* Pico de Orizaba

Ornithopoda *see* Hadrosauridae

orogenesis *see* orogeny

orogenic belts *see also* mobile belts.

Alabama OP-808
Alaska OP-110; OP-260
Appalachians OP-361
Arabian Peninsula OP-814
Arkansas OP-96
Australia OP-96
California OP-2192
Canada OP-96
Canadian Shield OP-1169
China OP-87; OP-309; OP-1787
Colorado B 2213
Columbia Plateau OP-1169
Connecticut OP-878
Georgia OP-808
Indonesia OP-96
Iran OP-1219
Maryland OP-9; OP-115
Mexico OP-2192
Missouri OP-96
Nevada OP-1496
New York OP-852
Poland OP-97
Russian Federation OP-946; OP-1893
Spain OP-96
Tennessee OP-643
Virginia C 1264; OP-115; OP-643; OP-852

orogeny *see also* Acadian Phase; Alleghany
Orogeny; Andean Orogeny; Grenvillian Orog-
eny; Hudsonian Orogeny; Ouachita Orogeny.
OP-400; OP-1183; OP-1390; OP-1786

California OP-1973
Canada OP-1151; OP-1891
China OP-576; OP-1046
Ghana OP-668
Idaho OP-1891
Mexico OP-1973
Montana OP-1891
New York OP-2198
Wyoming OP-520

orpiment

OP-1881
Wyoming OP-1882

orthoamphibole *see* anthophyllite

orthogneiss

Alaska P 1678

orthominasragrite

Utah OP-752

orthophosphates *see* phosphates

orthopyroxenite

Montana OP-2234

orthosilicates *see* nesosilicates; sorosilicates

Os (osmium) *see* osmium

Os-188/Os-187

Chile OP-2051

Os/Re *see* Re/Os

Osagian

Kentucky OP-2067

Ohio OP-2067

Osaka Bay OP-513

Osceola Mudflow OF 03-0464; OP-939;

OP-1070; OP-2137; OP-2266

osmium *see also* Re/Os.

Os-188/Os-187, Chile OP-2051

Osteichthyes *see* Actinopterygii

Osteopilus septentrionalis OP-2016

Ostracoda

OP-1173; OP-1226
Arctic Ocean OP-684
Atlantic Ocean OP-1269
California OP-1080; OP-1553; OP-1554
China OP-937
Haiti OP-1924
Idaho OP-2150
Loxococoncha OP-1268
Maryland OP-185; OP-1533
Utah OP-1080; OP-2150

Ottawa Sand

OP-874
Northwest Territories OP-920

Ouachita Belt OP-231; OP-2192

Ouachita Mountains OP-1065

Ouachita Orogeny

Appalachians OP-386
Arkansas OP-1393
Missouri OP-1393

Ouachita-Balcones Trend *see* Balcones fault zone

Outer Banks OP-253; OP-741; OP-2235

Outer Mongolia *see* Mongolia

outflow channels OP-1073

outgassing *see* degassing

outwash

OP-57; OP-2170
Massachusetts OP-580; OP-1224
Midwest WRI 03-4228
New Hampshire OP-1793
New York FS 0054-03
Washington OP-1895

overburden pressure *see* lithostatic pressure

overturned folds

California OP-2173

Owens Lake OP-503

Owens Valley OP-914; OP-992; OP-1352;
OP-1553

oxides *see also* aluminum oxides; baddeleyite;
birnessite; cassiterite; chromite; ferrihydrite;
gibbsite; goethite; hematite; hydroxides; iron ox-
ides; magnesiowustite; magnetite; manganese
oxides; niobates; perovskite; tantalates;
titanomagnetite; vernadite.

OF 2004-1068; OP-1881

Bangladesh OP-1342

Minnesota OP-201

Nevada OP-1870

Peru OP-1079

oxygen

OP-368; OP-881; OP-1477; OP-1769;

OP-2176; OP-2334

Colorado OP-256

dissolved oxygen

FS 0118-03

Alaska WRI 03-4328

Arizona WRI 03-4063

Arkansas WRI 01-4045; WRI 02-4116;

WRI 02-4187; WRI 02-4250

Atlantic Coastal Plain FS 0091-03

California SIR 2004-5036; WRI 03-4127;

OP-637

Delaware OF 03-0380

Florida OP-1617; OP-2359

Illinois

Louisiana C 1270; WRI 03-4135

Maryland OP-185

Massachusetts WRI 03-4309

Mexico WRI 03-4063

Michigan WRI 03-4136

Missouri WRI 02-4250

Nebraska FS 0072-03

Nevada OF 03-0335

New York OF 03-0414

North Carolina WRI 03-4295

Oklahoma WRI 03-4235

Pennsylvania OF 03-0414; OP-141

South Carolina WRI 03-4092

Texas WRI 03-4046; WRI 03-4270;

OF 03-0459; FS 0063-02; FS 0106-03

Virginia SIR 2004-5153; WRI 03-4116

Wisconsin WRI 03-4240; OF 2004-1087;

FS 0063-03

Florida OP-1582

Illinois OP-2314

Japan OP-189

Maryland OP-1533

Massachusetts OP-1353

Minnesota OP-201; OP-306

O-16, Wyoming OP-1956

O-18, Wyoming OP-1956

O-18/O-16

OP-66; OP-1173; OP-1488; OP-1983;

OP-2233

Alaska OF 03-0435; OP-308; OP-1560;

OP-1675; OP-2333

Antarctica OP-42; OP-838

Arctic Ocean OP-684

Argentina OP-1243

Arizona OP-1069; OP-2354

Arkansas WRI 03-4307

Atlantic Coastal Plain OP-601

Atlantic Ocean OP-842

Basin and Range Province OP-798

British Columbia OP-772; OP-773

California WRI 03-4059; OF 03-0489;

OP-503; OP-756; OP-787; OP-850;

OP-961; OP-1164; OP-1308; OP-1764;

OP-1846; OP-1941

Canada OP-379

Caribbean Sea OP-916

Chile OP-1243; OP-1993

China OP-503; OP-1641

Colorado OP-1186; OP-1600

Florida OP-1583; OP-1900

Great Basin OP-798

Gulf Coastal Plain OP-601

Haiti OP-1924

Idaho WRI 03-4239

Indonesia OP-2261

Iran OP-1219

Israel OP-2113

Italy OP-1379; OP-1914

Jordan OP-2113

Kenya OP-566

Kyrgyzstan OP-467

Mariana Islands OP-963

Mexico OP-537; OP-850; OP-1164; OP-2270

Michigan OP-374

Micronesia OP-963

Montana OP-1148

Nevada OP-279; OP-280; OP-1289; OP-1365;

OP-1872; OP-1885; OP-1941; OP-2010

New Hampshire OP-648

New Mexico WRI 03-4131; OF 2004-1093

New York OP-1097

Oregon OP-280; OP-1846

Russian Federation OP-952

United States OP-379

Utah OP-190; OP-279; OP-716; OP-1213

Vermont OP-770; OP-779; OP-2119

Virginia OP-2216

Washington WRI 03-4239; OF 03-0464;

OP-88; OP-879

West Virginia OP-2216

Western Australia OP-225

Wisconsin OP-876

Wyoming OP-2014

Queensland Australia OF 2004-1283

South Carolina OP-478

oxyhydroxides

OP-54; OP-881; OP-1605; OP-2056

Idaho OP-1935

Ozark Aquifer WRI 03-4329; OP-1665

Ozark Mountains SIR 2004-5005; OP-801;

OP-1542; OP-1562; OP-1901; OP-1902;

OP-2009

P

P *see* phosphorus

P-T-t paths

Maine OP-1253

New Hampshire OP-1253

P-waves *see also* PKP-waves; Pn-waves;

PP-waves.

OF 2004-1268; OP-274; OP-353; OP-495;

OP-781; OP-1240; OP-1795; OP-2276

Africa OP-936

Alaska OP-1150

Arkansas OP-1660

California P 1550-E; OF 03-0485;

OF 2004-1282; OP-326; OP-338; OP-376;

OP-670; OP-685; OP-751; OP-953; OP-1053;

OP-1346; OP-1466; OP-1557; OP-1598;

OP-2038

Canada OP-1150

China OP-2374

Hawaii OP-786; OP-1230; OP-1727

Iceland OP-2125

Japan OP-1534; OP-1824; OP-2243

New Mexico OF 2004-1236

Northwest Territories OP-920

Norway OP-2172

Oregon OP-1829; OP-2185

Philippine Islands OP-1291

Russian Federation OP-1172; OP-1632

South Carolina OP-654

Tennessee OP-1660

Washington OP-119; OP-1829; OP-2185

Pacific Coast *see also* California; Oregon; Wash-
ington.

OF 00-0439; FS 2004-3075; OP-1048;

OP-1233; OP-1631

Pacific Decadal Oscillation OP-249; OP-1238;
OP-1334

Pacific Northwest SIR 2004-5078; OF 02-0011;
OP-1716; OP-1761

Pacific Ocean *see also* California Current; East
Pacific; El Nino; El Nino Southern Oscillation;
Hawaii; North Pacific; Pacific Plate; Ross Sea;
West Pacific.

WRI 03-4141; OF 00-0439; OF 01-0508;

OF 02-0281; OF 03-0364; OF 03-0451;

OF 03-0482; OF 2004-1019; OF 2004-1049;

OF 2004-1192; OF 2004-1219; OF 2004-1221;

OF 2004-1287; OF 2004-1353; CP-0048; OP-81;

OP-145; OP-206; OP-280; OP-443; OP-514;

OP-620; OP-891; OP-988; OP-1150; OP-1151;

OP-1312; OP-1398; OP-1627; OP-1677;

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OP-2024; OP-2185

Aleutian Trench OP-365; OP-653; OP-1085;

OP-1304

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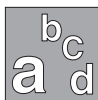
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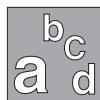
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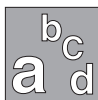
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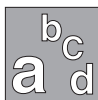
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New Hampshire OF 03-0364; OP-1098; OP-1793

New Mexico SIR 2004-5158; WRI 03-4186; OF 2004-1093

New York WRI 02-4221; OF 03-0241; OF 2004-1283; OP-109; OP-339

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Ra-228/Ra-224 OP-1636

Ra-228/Ra-226

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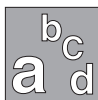
New York OP-1636

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Pb-208/Pb-204; Pb-210; Pu-239; Pu-240;
Ra-224; Ra-226; Ra-228; Ra-228/Ra-226;
Rb-87/Sr-86; S-35; Th-230; Th-230/Ra-226; tri-
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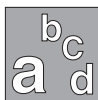
remanent magnetization *see also* anhysteretic remanent magnetization; natural remanent magnetization.

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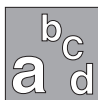
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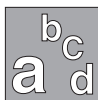
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- San Francisco Bay region** *see also* Loma Prieta
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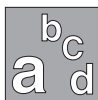
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WRI 03-4266; WRI 03-4330; FS 2004-3049;
FS 2004-3056

Mexico WRI 03-4063

Michigan WRI 03-4136

Midwest FS 2004-3024

Minnesota WRI 02-4092; WRI 03-4334;

OF 2004-1076; OP-2253

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Montana WRI 02-4219; OF 03-0476;

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WRI 03-4047; WRI 03-4068; FS 0016-03; FS 0042-02; FS 0086-03; FS 0118-03; FS 2004-3010; OP-1226
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structural analysis *see also* boudinage; breccia; cleavage; deformation; faults; folds; foliation; joints; lineation; preferred orientation; shear zones.

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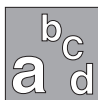
Alaska OP-975

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OP-575; OP-2003

Colorado P 1699; MF-2415

Connecticut WRI 03-4300; OF 03-0487-A;

OF 03-0487-B; OF 2004-1003

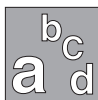
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tailings dams

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tailings ponds

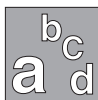
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vernadite OP-854**Vertebrata** *see also* Pisces; Tetrapoda.

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mation; Chesapeake Bay; Chilhowee Group;

Chopawamsic Formation; Conasauga Group;

Delmarva Peninsula; James River; Lynchburg

Formation; Piedmont; Potomac River; Pottsville

Group; Richmond Basin; Rome Formation.

SIR 2004-5153; C 1264; WRI 03-4278;

OF 03-0388; OF 2004-1016; OF 2004-1321;

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New Hampshire

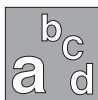
Oklahoma FS 0040-03

Rocky Mountains OF 03-0292

Tennessee

Texas SIR 2004-5062; WRI 03-4046;

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Washington OF 03-0344; OF 2004-1203

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SIR 2004-5003; C 1272; OF 2004-1283; OP-2220
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dacites; glasses; lava; phonolites; pyroclastics; rhyodacites; rhyolites; trachyandesites; trachytes; volcanic fields; volcanism; volcanoes.

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Katmai; Kilauea; Kirishima; Kohala;

Kusatsu-Shirane; Lascar; Lassen Peak;

Makushin; Mauna Kea; Mauna Loa; Medicine

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OP-2093; OP-2324

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OF 03-0435; OF 03-0436; FS 2004-3084;

OP-300; OP-522; OP-523; OP-525; OP-888;

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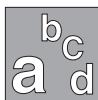
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wallrocks *see* wall rocks
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Group; Columbia River estuary; Crescent For-
mation; Grays Harbor; Kootenay Arc; Mount
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SIR 2004-5052; C 1235; C 1237; WRI 03-4173;
WRI 03-4204; OF 00-0439; OF 01-0508;
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OP-614; OP-735; OP-1032; OP-1060; OP-1241;
OP-1247; OP-1369; OP-1804; OP-2063;
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OP-1209; OP-1389; OP-1461; OP-1463;
OP-1464; OP-1723; OP-1775; OP-1883;
OP-1895; OP-1944; OP-2153; OP-2254;
OP-2255
Snohomish County Washington
South Cascade Glacier OP-342
Spokane County Washington WRI 03-4239
Stevens County Washington
Thurston County Washington OP-879;
OP-1061; OP-1203; OP-1207; OP-1349;
OP-1368; OP-1463; OP-1464; OP-1505;
OP-1614; OP-1616; OP-1762; OP-2255;
OP-2256; OP-2279
Vancouver Washington OP-1248
Wahkiakum County Washington OP-1677

Whatcom County Washington SIR 2004-5084;
OP-578; OP-1210; OP-1661
Willapa Bay OF 00-0439
Yakima County Washington OP-1210;
OP-1319; OP-1454; OP-2320

waste disposal *see also* agricultural waste;
bioremediation; chemical waste; creosote; dis-
posal barriers; geologic hazards; hazardous
waste; human waste; industrial waste; landfills;
municipal waste; pesticides; radioactive waste;
underground installations; waste disposal sites;
waste rock; waste water.

OP-862; OP-1606
Colorado FS 2004-3009; OP-1064
Illinois OP-944
Massachusetts OP-731
Michigan OP-307
Missouri
Montana OP-1755
Nevada OP-1409
New Hampshire OP-731
North Carolina OP-335; OP-934
Tennessee OP-335
Texas OP-1409
Washington OP-1191

waste disposal ponds *see* waste lagoons

waste disposal sites *see also* radioactive waste;
Yucca Mountain.

OP-351
California C 1259
Massachusetts OP-1759
Montana OF 2004-1254
Vermont OF 2004-1248
Washington OF 00-0439

waste lagoons
Vermont OP-770

waste management *see also* hazardous waste;
landfills; pesticides.
B 2179-A; OF 2004-1336; OP-771
Colorado OF 2004-1388

waste rock
OP-187; OP-351; OP-617; OP-696; OP-880
Alaska OP-1629; OP-2117
Colorado OP-823; OP-1153
Idaho OF 2004-1067; OP-359; OP-360;
OP-476; OP-813
Montana OP-565
Nevada B 2210-E
Spain OP-317; OP-1408

waste water
FS 0126-03; OP-860; OP-880; OP-1005;
OP-1358
Alabama OP-1570
Arizona WRI 03-4063; OP-174
Atlantic Ocean OP-2269
California SIR 2004-5161; OF 2004-1019;
OP-48; OP-210; OP-272; OP-305; OP-757
Colorado WRI 03-4209; FS 0043-03; OP-1002;
OP-1687; OP-2273
Connecticut
Florida WRI 03-4299; OP-58; OP-885;
OP-1414; OP-1583
France OP-1418
Louisiana OP-993
Massachusetts WRI 03-4190; OP-91; OP-450
Mexico WRI 03-4063
Minnesota OP-885
Missouri WRI 03-4234
Nebraska FS 0072-03
New England

New Jersey OF 03-0197
 New Mexico WRI 03-4186
 Ohio WRI 03-4333
 Oklahoma OP-44
 Rhode Island WRI 03-4190
 South Dakota
 Wisconsin OP-1400

waste, agricultural *see* agricultural waste

waste, animal *see* animal waste

waste, human *see* human waste

waste, industrial *see* industrial waste

waste, municipal *see* municipal waste

waste, radioactive *see* radioactive waste

wastewater lagoons *see* waste lagoons

water cycle *see* hydrologic cycle

water pollution

OP-1758
 California OF 2004-1019
 Colorado OP-1084; OP-1475; OP-1609;
 OP-1687; OP-1735; OP-1780
 Louisiana OP-993
 Massachusetts OP-1532; OP-1596
 Nebraska OP-1084; OP-1735
 New York OP-109

water repellants *see* hydrophobic materials

water resources *see also* artesian waters; reservoirs; springs; water rights; water use.

SIR 2004-5003; P 1411-A; TWI 08-A3;
 WRI 03-4200; WRI 03-4291; OF 02-0011;
 OF 2004-1197; FS 0052-02; FS 0090-01;
 FS 0103-03; FS 0105-01; FS 0112-02;
 FS 0128-01; FS 0128-02; FS 2004-3045;
 FS 2004-3068; FS 2004-3088; OP-355; OP-457;
 OP-529; OP-646; OP-729; OP-872; OP-884;
 OP-898; OP-908; OP-1016; OP-1417; OP-1770;
 OP-1942; OP-1963; OP-2215; OP-2340;
 OP-2373

Arizona OP-1044

Arkansas WRI 01-4045

Basin and Range Province OF 2004-1008;
 OP-978

California SIR 2004-5068; FS 0074-03; OP-13;
 OP-210; OP-305; OP-494; OP-1000;
 OP-1598; OP-1644; OP-2213; OP-2361

Canada OP-1797

Caribbean region OF 64-0158

Colorado WRI 03-4275; FS 0043-03;
 FS 2004-3066; OP-1106; OP-1730

Connecticut OP-1887

Ethiopia OP-965

Florida WRI 03-4242; WRI 03-4273;
 OF 2004-1198; OP-378; OP-636; OP-822;
 OP-1006; OP-1668

Georgia WRI 03-4032; OF 2004-1198; OP-143;
 OP-178; OP-252; OP-278; OP-346; OP-378;
 OP-655; OP-1095; OP-1163

Great Basin OF 2004-1008

Gulf Coastal Plain OP-1361

Idaho OP-1250; OP-2377

Illinois WRI 03-4226

Indian Ocean OP-18

Iowa

Israel OP-1301; OP-2112

Jordan OP-2112

Kansas WRI 03-4298

Kyrgyzstan OP-467

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Louisiana WRI 01-4063; OP-853

Massachusetts FS 0079-03; FS 2004-3049;

OP-551

Mexico OP-1483

Michigan OP-307; OP-518; OP-1710; OP-1869

Minnesota SIR 2004-5192; WRI 02-4092;
 OF 2004-1076; OP-125; OP-1235; OP-2178

Missouri OP-1589

Montana OP-2377

Nebraska FS 0072-03; OP-1116

Nevada SIR 2004-5155; OP-13; OP-1999;
 OP-2041; OP-2213

New England P 1415-C; C 1226

New Jersey WRI 03-4255

New Mexico OF 2004-1093

New York WRI 02-4221; WRI 02-4284

North Dakota OF 2004-1076

Oklahoma WRI 03-4235

Oregon WRI 03-4098; WRI 03-4145; OP-1432;
 OP-1878

Pennsylvania WRI 03-4255

Puerto Rico WRI 02-4132; WRI 03-4317

Rocky Mountains

South Carolina OP-487; OP-2287

South Dakota OP-1805

Texas SIR 2004-5053; OP-1280; OP-1667;
 OP-2144; OP-2287

United Kingdom OP-13

United States OP-1483

Utah

Vermont OP-770

Virginia SIR 2004-5153; OF 2004-1016;
 OP-686; OP-1968

Washington OP-1247; OP-1461

West Virginia FS 0050-99

Wisconsin WRI 03-4240

water rights

Nevada

water use

C 1268; OF 2004-1308; FS 0075-03;
 FS 0078-03; FS 0126-03; FS 2004-3097;
 OP-805; OP-923; OP-973; OP-1501
 Arizona OF 03-0503; FS 0113-02
 Arkansas WRI 03-4109; WRI 03-4132;
 WRI 03-4230; WRI 03-4231; WRI 03-4232;
 WRI 03-4233; WRI 03-4284; FS 2004-3086
 California FS 2004-3061; OP-711; OP-1015

Canada OP-722

Colorado FS 0110-03

Connecticut WRI 03-4300

Delaware FS 0111-03

Florida OF 02-0426; OP-722

Georgia OP-251

Idaho

Illinois OP-1585

Kansas WRI 03-4171

Louisiana WRI 03-4021; WRI 03-4132;
 WRI 03-4231; OP-242

Maine

Maryland FS 0112-03

Massachusetts WRI 03-4190; WRI 03-4330

Mexico OP-722

Nebraska OP-1653

Nevada

New Hampshire

New Jersey OF 03-0197

New Mexico OF 2004-1093; FS 0110-03;
 FS 2004-3081

New York WRI 03-4300; OF 03-0414

Oklahoma OF 03-0362

Oregon WRI 03-4195; WRI 03-4327

Pennsylvania OF 03-0414

Rhode Island SIR 2004-5020; WRI 03-4190;
 WRI 03-4222

Tennessee WRI 03-4264

Texas OF 03-0362

Virginia WRI 03-4258

Washington

Wisconsin FS 0116-03

water, waste *see* waste water

water-break *see* breakwaters

water-gas interface *see* gas-water interface

water-mineral interface *see* mineral-water interface

water-rock interaction

OF 2004-1068; OP-16; OP-420; OP-618;
 OP-1354; OP-1740; OP-1743; OP-2332

Alabama

California OP-1941

Canada OP-979

Colorado OP-736

Hawaii OP-389

Idaho WRI 03-4272

Italy OP-1704

Nevada OP-1365; OP-1733; OP-1909;
 OP-1939; OP-1940; OP-1941; OP-2106

Oregon OP-1375

Pacific Ocean OP-657

Puerto Rico OP-858

Texas

Virginia OF 2004-1016

Washington OP-1319; OP-1375; OP-1558;
 OP-1955

waterways

Illinois WRI 03-4336

Louisiana

Michigan

Missouri OP-399; OP-1544

Ontario

South Dakota OP-1049

wave amplification

OF 2004-1268; OP-84; OP-1195

Alaska OP-1003

California OF 2004-1269; OF 2004-1282;
 OP-85; OP-86; OP-848; OP-1313; OP-1406;
 OP-2370

Tennessee OF 2004-1294

Washington OP-1003; OP-1004; OP-1895;
 OP-1972; OP-2153

wave fields

Hawaii OP-960; OP-2059

wave splitting OP-2024

wave-cut platforms

P 1693

Washington P 1693

wavefields *see* wave fields

weathering *see also* biodegradation.

P 1693; FS 2004-3072; OP-188; OP-310;
 OP-594; OP-618; OP-771; OP-943; OP-1563;
 OP-1983; OP-2219

Alabama OP-1833

Alaska OP-1844

California OF 2004-1007; OP-1716; OP-2073;
 OP-2361

chemical weathering

OP-23; OP-24; OP-1444; OP-2332

Alaska OP-1845

Antarctica OP-533

Colorado OP-256

District of Columbia GN

Georgia OP-904



Puerto Rico OP-858
 Utah OP-734
 Colorado OP-678; OP-768; OP-1494; OP-1497;
 OP-1600; OP-1604; OP-2275
 Georgia OP-114; OP-143
 Idaho OP-360; OP-1935
 New York OP-144
 North Carolina OP-335
 Oregon OP-727
 Slovenia OP-1013
 Tennessee OP-335
 Vermont OP-2119
 Victoria Australia OP-74
 Virginia OP-2216
 Washington OP-1070; OP-1558
 West Virginia OP-2216

websterite
 Montana OP-214

Wegener hypothesis *see* continental drift

Weichselian *see* upper Weichselian

Weisner Formation OP-808

welded tuff
 California OP-914; OP-2258
 Colorado OP-1494; OP-1683
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 OP-1909; OP-1939; OP-1940; OP-2106;
 OP-2258

well logging *see* well-logging

well stimulation
 Colorado OP-605

well-logging *see also* borehole televewers;
 gamma-ray methods.
 OP-495
 acoustical logging, Texas OP-749
 California OP-530
 electrical logging, Japan OP-393
 Florida OP-2288
 Georgia OP-143
 New Brunswick OP-1830
 New York OP-150
 seismic logging
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 Washington OP-1895
 temperature logging
 Arizona OP-213
 Greenland OP-1424
 Japan OP-393
 Texas OP-590
 Virginia OP-745

wellbore breakouts *see* borehole breakouts

wellhead protection
 Minnesota

West Africa *see* Ghana; Nigeria

West African Shield OP-668; OP-857; OP-983

West Atlantic OP-1877

West Bridgewater Formation OP-2237

West Indies *see* Antilles; Bahamas

West New Guinea *see* Irian Jaya Indonesia

West Nueces Formation OP-1050

West Pacific *see* Northwest Pacific; Southwest Pacific

West Pakistan *see* Pakistan

West Point Complex P 1678

West Siberian Plain *see* Siberian Lowland

West Virginia *see also* Appalachian Basin; Ohio River valley; Pottsville Group.
 WRI 02-4303; OF 03-0388; OF 03-0396;
 FS 0050-99; OP-1426

Hardy County West Virginia OP-1232
 Monongalia County West Virginia C 1264
 Monroe County West Virginia OP-2216
 Morgan County West Virginia C 1264
 Pendleton County West Virginia C 1264;
 OP-827; OP-2216
 Preston County West Virginia C 1264
 West-Central Alaska *see* Seward Peninsula

Westerly Granite OP-1689

Western Australia
 OP-184; OP-1042
 Eastern Goldfields OP-225
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Western Canada *see* Alberta; British Columbia;
 Canadian Cordillera; Northwest Territories; Yukon Territory

Western Canada Sedimentary Basin
 OF 2004-1283

Western Europe *see* France; Iceland; Netherlands;
 Scandinavia; United Kingdom

Western Interior
 OP-40; OP-134; OP-899; OP-2260
 Western Interior Seaway OP-1305

Western Interior Seaway OP-1305
 western Nagano earthquake 1984 *see* Nagano earthquake 1984

Western Phosphate Field OP-352; OP-404;
 OP-405; OP-594

wetlands *see also* bogs; constructed wetlands;
 mires; swamps.
 FS 0126-03; OP-646; OP-880; OP-918;
 OP-1173; OP-1174; OP-1226; OP-1425
 Atlantic Coastal Plain OP-2341
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 Florida OP-485; OP-486; OP-548; OP-1035;
 OP-1142; OP-1265; OP-1458; OP-1472;
 OP-1478; OP-1526; OP-1555; OP-1617;
 OP-1618; OP-1619; OP-1640; OP-1659;
 OP-1668; OP-1693; OP-1752; OP-1880;
 OP-1900; OP-1982; OP-2075; OP-2076;
 OP-2077; OP-2105; OP-2251; OP-2264
 Great Plains OP-1625
 Gulf of Mexico WRI 03-4287
 Idaho OP-536; OP-813
 Iowa OP-2088
 Louisiana DDS-0079; P 1672; OP-701;
 OP-2345
 Maryland OF 2004-1302; OP-1270
 Mexico OP-2066
 Michigan OP-1698; OP-2339
 Minnesota
 Missouri WRI 03-4234
 Nevada OF 03-0335
 New England OF 03-0405
 New York OP-1771
 North Dakota SIR 2004-5168; P 1675
 Oklahoma OP-1126; OP-1127
 Oregon OP-156
 Rhode Island
 Rocky Mountains OP-2161
 South Carolina OP-113
 South Dakota OP-419
 Virginia OP-1456
 Washington WRI 03-4204

Wisconsin OP-876

Whidbey Formation OP-1723

Whidbey Island OP-439; OP-1189

Whiskey Island OP-742

White Cloud Deposit OP-2349
 white mica *see* muscovite

White Mountains OP-648; OP-715; OP-917;
 OP-1568
 white pyrites *see* arsenopyrite

White River WRI 02-4256; OF 2004-1277;
 OF 98-0533; OP-706; OP-939

White River Deposit OP-987

White River Group *see also* Brule Formation.
 OP-955

White River Plateau OP-1680

White Sage Formation OP-1886

White Wolf Fault OP-1509

White-Inyo Range *see* Inyo Mountains

Whitehorse Yukon Territory OP-1276

Whiterockian
 Arkansas OP-1325

Whitetop Member OP-622

Whitewood Creek P 1681

Whitmore Point Member OP-2222

wiborgite *see* rapakivi

Wichita Kansas WRI 03-4298

Wichita Mountains OP-1671

Wilburn Member OP-622

Wilcox Aquifer

Wilcox Group SIR 2004-5169; OF 2004-1273;
 OP-886; OP-2315

Wilderness Quadrangle I-2801

Willamette Valley OP-1048; OP-1432

Willapa Bay OF 00-0439

Williams Fork Formation OP-605

Williston Basin OP-368

Willoughby Limestone P 1678

Willow Creek OP-750

Willow Grove Meteorite OP-74

Wills Creek Formation C 1264; OP-1366

Wilmington California OF 2004-1053

Wilson Grove Formation OF 2004-1017;
 OP-869

Winchester Quadrangle OF 03-0461

winchite
 Montana OP-1784

Wind River Range FS 0051-02; OP-194;
 OP-760; OP-1445; OP-1679; OP-1956

Windermere System OP-1169; OP-1709

Wingate Sandstone SIM-2849; OP-2222

Winnemucca Nevada OP-279

wireline logging *see* well-logging

Wisconsin *see also* Green Bay; Keweenaw;
 Lake Michigan; Lake Superior region; Marquette Range Supergroup; Michigamme Formation; Niagara Escarpment.
 C 1230; WRI 02-4087; WRI 03-4250;
 WRI 03-4334; OF 03-0147; OF 03-0157;
 OF 2004-1087; OF 2004-1355; FS 0063-03;
 FS 0116-03; OP-124; OP-472; OP-669; OP-876;
 OP-919; OP-1113; OP-1400; OP-2337
 Barron County Wisconsin WRI 03-4238
 Dane County Wisconsin WRI 03-4163; OP-95
 Forest County Wisconsin WRI 03-4144

Marinette County Wisconsin OP-758
 Milwaukee Wisconsin SIR 2004-5031;
 WRI 03-4240
 Outagamie County Wisconsin OP-2186
 Pierce County Wisconsin OP-277
 Vilas County Wisconsin WRI 03-4144
 Washburn County Wisconsin WRI 03-4238

Wisconsinan *see also* upper Wisconsinan.

Alaska OP-598; OP-1845
 Basin and Range Province OP-666
 Colorado OP-955
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 Michigan OP-263
 Montana OP-515
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 Wisconsin OP-124; OP-1113
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witherite

Alaska OP-1675

Wolfcampian *see* Hueco Limestone

wollastonite

Italy OP-1379

Wood River OP-224; OP-1707

Woodbine Formation OP-220

Woodland Quadrangle

World Coal Quality Inventory C 1272;
 OF 2004-1283

World Trade Center OP-1159; OP-1954

World Wide Web

OF 00-0439; OF 2004-1002; FS 0052-02;
 FS 0055-03; FS 0098-03; FS 0128-02; OP-73;
 OP-708; OP-929; OP-1057; OP-1937;
 OP-2310; OP-2312; OP-2347
 Florida OP-1478; OP-2168; OP-2177
 Georgia OP-1448
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Wrangell Mountains

Wrangellia

Alaska OP-1120; OP-1150; OP-1892; OP-2083
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wrench faults

Arabian Peninsula OP-814
 California OP-2335
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wrinkle ridges OF 2004-1100; OF 2004-1289;
 I-2779; I-2792; I-2794

Wyodak-Anderson coal field OF 2004-1283

Wyoming *see also* Absaroka Range; Bear River basin; Beartooth Mountains; Bighorn Basin; Black Hills; Colorado River basin; Fort Union Formation; High Plains Aquifer; Mesaverde Group; Minnelusa Formation; Mowry Shale; Opeche Shale; Phosphoria Formation; Pinedale Glaciation; Powder River basin; Spearfish Formation; Tongue River; Wasatch Formation; Yellowstone National Park; Yellowstone River. SIR 2004-5005; C 1236; OF 2004-1291; OF 2004-1360; OP-422; OP-532; OP-1482
 Carbon County Wyoming
 Crook County Wyoming FS 0070-02
 Fremont County Wyoming OP-194; OP-1956
 Grand Teton National Park OF 2004-1305; OP-520; OP-667
 Jackson Hole OP-520
 Johnson County Wyoming FS 0069-02; OP-1140

Lincoln County Wyoming OP-721
 Natrona County Wyoming OP-774
 Niobrara County Wyoming OP-5
 Park County Wyoming SIM-2816; OP-667
 Platte County Wyoming OF 2004-1095;
 FS 0068-02
 Sublette County Wyoming OP-194; OP-721; OP-1956
 Sweetwater County Wyoming OP-555; OP-721
 Teton County Wyoming
 Wind River Range FS 0051-02; OP-194; OP-760; OP-1445; OP-1679; OP-1956

Wyoming Basin OP-555

Wyoming Province OP-438; OP-596; OP-626;
 OP-721; OP-1169; OP-1343; OP-1445;
 OP-1891; OP-2285; OP-2286

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X-ray Absorption Fine Structure spectra *see*

XAFS spectra

X-ray Absorption Near Edge Structure spectra *see*

XANES spectra

X-ray analysis *see also* X-ray fluorescence.
 C 1272; OP-314

X-ray diffraction analysis C 1272

X-ray fluorescence OP-183

X-ray spectra *see* XANES spectra

XAFS spectra OP-21; OP-1605; OP-1746

XANES spectra

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Xiaganchaigou Formation OP-937

Xiayoushshan Formation OP-937

Xinjiang China *see also* Altai Mountains; Tien Shan.

Junggar Basin OP-259; OP-2303; OP-2305

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Xorkol Basin OP-937

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Yakutat Terrane OP-110; OP-653; OP-1085

Yakutia Russian Federation *see* Verkhoyansk Range

Yamal-Nenets Russian Federation *see* Urengoy Field

Yangtze Platform OP-176

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Yb *see* ytterbium

yellow arsenic *see* orpiment

Yellowjacket Formation OP-303; OP-1708

Yellowstone Hot Spot

OP-1949

Basin and Range Province OP-1559

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Caribbean region OP-1388

Great Basin OP-1559

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Idaho OP-1495; OP-1979

Italy OP-837

Japan OP-837

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Nevada OP-1950; OP-2058

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Yellowstone Mine OP-862

Yellowstone National Park SIR 2004-5005;
 OF 02-0011; OF 98-574; FS 0100-03; OP-218;
 OP-515; OP-667; OP-723; OP-1758; OP-1882

Yellowstone Plume *see* Yellowstone Hot Spot

Yellowstone River C 1234; OF 03-0476; OP-515

Yenisei Ridge OP-1893

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Yilgarn Block OP-225; OP-857

Yorktown Formation OP-686

Yorktown-Eastover Aquifer WRI 03-4258

Yosemite National Park OF 02-0011;
 OF 03-0491; OP-328; OP-2098

Younger Dryas

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Basin and Range Province OP-666

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ytterbium OP-1746

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Yuba River SIR 2004-5165; OF 03-0397;
 OF 2004-1061; OF 2004-1080; OP-961;
 OP-962; OP-1336; OP-2158; OP-2159

Yucatan Mexico OF 2004-1016

Yucatan Peninsula *see* Chicxulub Crater

Yucca Flat OP-1539

Yucca Mountain SIR 2004-5205; WRI 03-4321;
 OF 03-0387; MF-2422; OP-193; OP-268;
 OP-521; OP-543; OP-689; OP-1024; OP-1089;
 OP-1244; OP-1257; OP-1278; OP-1279;
 OP-1335; OP-1359; OP-1416; OP-1441;
 OP-1547; OP-1655; OP-1688; OP-1733;
 OP-1870; OP-1871; OP-1890; OP-1899;
 OP-1905; OP-1909; OP-1910; OP-1921;
 OP-1922; OP-1939; OP-1940; OP-1941;
 OP-1967; OP-1977; OP-1981; OP-2045;
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 OP-2214; OP-2258; OP-2328; OP-2329;
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Yukon River OP-281; OP-421; OP-1276;
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Yukon Territory *see also* Saint Elias Mountains.
 OP-598; OP-614

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Whitehorse Yukon Territory OP-1276

Yukon-Koyukuk Basin OP-1040

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Nevada OP-2106

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Nevada OP-2106; OP-2369

zinc

OP-146; OP-753; OP-771
Alaska OP-1594
California OP-17; OP-961
Colorado OP-1136; OP-1152; OP-1608;
OP-2175; OP-2356
Florida OP-1283; OP-1493
Idaho OP-612
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Montana OP-612
Poland OP-557
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West Virginia OP-1107; OP-1392

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OP-10; OP-1008; OP-1183; OP-1802
Alabama OP-808; OP-843

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Alberta OP-2286
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OP-1974; OP-2207; OP-2281; OP-2283
Canada OP-379
Chile OP-290
China OP-87; OP-343; OP-937
Colorado OP-955
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